

Dulles Corridor Metrorail Project - Wiehle Avenue Extension

# **Preliminary Engineering Design Refinements Environmental Assessment**



Federal Transit Administration  
Virginia Department of Rail and Public Transportation  
Washington Metropolitan Area Transit Authority

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**U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL TRANSIT ADMINISTRATION  
VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION  
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

**DULLES CORRIDOR METRORAIL PROJECT  
PRELIMINARY ENGINEERING DESIGN REFINEMENTS  
ENVIRONMENTAL ASSESSMENT**

**ABSTRACT**

This Environmental Assessment (EA) addresses potential environmental impacts associated with design refinements to the Dulles Corridor Metrorail Project (formerly known as the Dulles Corridor Rapid Transit Project). The design refinements, which affect the project's initial construction phase (known as the Extension to Wiehle Avenue), came about as the project proceeded through the preliminary engineering phase of project development. The EA describes modifications that have been made to the project since the publication of the *Dulles Corridor Rapid Transit Project Final Environmental Impact Statement and Section 4(f) Evaluation* (Final EIS) in December 2004 and since the issuance of a Record of Decision for the project by FTA in March 2005. This document presents the anticipated changes in effects from those documented in the Final EIS.

The Dulles Corridor Metrorail Project is proposed to improve mobility and transit accessibility in the rapidly developing and congested Dulles Corridor. The limits of the project extend approximately 23 miles from the vicinity of the West Falls Church Metrorail Station in Fairfax County to the vicinity of Route 772 in Loudoun County. The project would be constructed in two phases. The first phase, the Extension to Wiehle Avenue, would have an alignment length of approximately 11.6 miles and operate from the existing Metrorail Orange Line to Wiehle Avenue in Fairfax County. The second phase, the Extension to Dulles Airport/Route 772, would continue construction and operation of the line to Dulles International Airport and Route 772 in eastern Loudoun County.

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A public hearing on the EA will be held at 7:00 p.m. on March 28, 2006 at Kilmer Middle School, 8100 Wolftrap Road, Vienna, Virginia to provide citizens and agencies an opportunity to comment on the proposed design refinements to the project. Comments on this document may be made orally at the public hearing or submitted in writing. Written comments should be sent to Karl Rohrer, Deputy Project Director, Dulles Corridor Metrorail Project, 1595 Spring Hill Road, Suite 600, Vienna, Virginia 22182. Comments may also be submitted via e-mail to [eacomment@dullesmetro.com](mailto:eacomment@dullesmetro.com). All written comments must be received by **April 11, 2006**.

After the public hearing and the close of the comment period, a Public Hearing Report will be prepared to formally document and respond to comments received at the hearing and during the comment period. Following its publication, FTA will review the findings of the EA and the responses to comments and will make its formal National Environmental Policy Act determination on the preliminary engineering design refinements.



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# TABLE OF CONTENTS

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|            |                                                                |            |
|------------|----------------------------------------------------------------|------------|
| <b>1.0</b> | <b>PURPOSE AND NEED FOR THE PROPOSED ACTION.....</b>           | <b>1-1</b> |
| 1.1        | BASIS FOR THE ENVIRONMENTAL ASSESSMENT .....                   | 1-1        |
| 1.2        | PURPOSE AND NEED .....                                         | 1-2        |
| 1.3        | PLANNING CONTEXT.....                                          | 1-5        |
| 1.3.1      | Project History .....                                          | 1-5        |
| 1.3.2      | Local and Regional Plans .....                                 | 1-6        |
| 1.3.3      | Environmental Review and Project Development Process .....     | 1-9        |
| 1.4        | PUBLIC INVOLVEMENT AND AGENCY COORDINATION .....               | 1-10       |
| <b>2.0</b> | <b>ALTERNATIVES EVALUATED .....</b>                            | <b>2-1</b> |
| 2.1        | FINAL EIS WIEHLE AVENUE EXTENSION.....                         | 2-1        |
| 2.1.1      | Final EIS Wiehle Avenue Extension Alignment .....              | 2-1        |
| 2.1.2      | Final EIS Wiehle Avenue Extension Stations.....                | 2-2        |
| 2.1.3      | Final EIS Wiehle Avenue Extension Yard Facilities .....        | 2-3        |
| 2.1.4      | Final EIS Wiehle Avenue Extension Ancillary Facilities .....   | 2-4        |
| 2.1.5      | Final EIS Wiehle Avenue Extension Operations.....              | 2-4        |
| 2.1.6      | Final EIS Wiehle Avenue Extension Ridership .....              | 2-5        |
| 2.1.7      | Final EIS Wiehle Avenue Extension Construction Activities..... | 2-5        |
| 2.2        | PE WIEHLE AVENUE EXTENSION .....                               | 2-6        |
| 2.2.1      | PE Wiehle Avenue Extension Alignment .....                     | 2-6        |
| 2.2.2      | PE Wiehle Avenue Extension Stations .....                      | 2-8        |
| 2.2.3      | PE Wiehle Avenue Extension Yard Facilities .....               | 2-10       |
| 2.2.4      | PE Wiehle Avenue Extension Ancillary Facilities .....          | 2-11       |
| 2.2.5      | PE Wiehle Avenue Extension Operations.....                     | 2-11       |
| 2.2.6      | PE Wiehle Avenue Extension Ridership .....                     | 2-12       |
| 2.2.7      | PE Wiehle Avenue Extension Construction Activities .....       | 2-12       |
| 2.3        | CAPITAL AND OPERATING COSTS.....                               | 2-12       |
| 2.3.1      | Final EIS Wiehle Avenue Extension Costs.....                   | 2-13       |
| 2.3.2      | PE Wiehle Avenue Extension Costs.....                          | 2-13       |
| 2.3.3      | Summary of Financial Plan.....                                 | 2-13       |
| 2.4        | SUMMARY OF PE DESIGN REFINEMENTS.....                          | 2-15       |

## TABLE OF CONTENTS

|                       |                                      |            |
|-----------------------|--------------------------------------|------------|
| <b>3.0</b>            | <b>ENVIRONMENTAL EFFECTS .....</b>   | <b>3-1</b> |
| 3.1                   | DISPLACEMENTS AND RELOCATION .....   | 3-4        |
| 3.1.1                 | Changes in Long-Term Effects.....    | 3-4        |
| 3.1.2                 | Construction Effects .....           | 3-6        |
| 3.1.3                 | Mitigation.....                      | 3-7        |
| 3.2                   | VISUAL AND AESTHETIC CONDITIONS..... | 3-7        |
| 3.2.1                 | Changes in Long-Term Effects.....    | 3-7        |
| 3.2.2                 | Construction Effects .....           | 3-10       |
| 3.2.3                 | Mitigation.....                      | 3-10       |
| 3.3                   | AIR QUALITY .....                    | 3-11       |
| 3.3.1                 | Changes in Long-Term Effects.....    | 3-11       |
| 3.3.2                 | Construction Effects .....           | 3-12       |
| 3.3.3                 | Mitigation.....                      | 3-12       |
| 3.4                   | NOISE.....                           | 3-12       |
| 3.4.1                 | Changes in Long-Term Effects.....    | 3-15       |
| 3.4.2                 | Construction Effects .....           | 3-21       |
| 3.4.3                 | Mitigation.....                      | 3-21       |
| 3.5                   | VIBRATION .....                      | 3-21       |
| 3.5.1                 | Changes in Long-Term Effects.....    | 3-22       |
| 3.5.2                 | Construction Effects .....           | 3-23       |
| 3.5.3                 | Mitigation.....                      | 3-23       |
| 3.6                   | WATER RESOURCES.....                 | 3-23       |
| 3.6.1                 | Changes in Long-Term Effects.....    | 3-23       |
| 3.6.2                 | Construction Effects .....           | 3-27       |
| 3.6.3                 | Mitigation.....                      | 3-27       |
| 3.7                   | TRAFFIC .....                        | 3-28       |
| 3.7.1                 | Changes in Long-Term Effects.....    | 3-28       |
| 3.7.2                 | Construction Effects .....           | 3-31       |
| 3.7.3                 | Mitigation.....                      | 3-33       |
| 3.8                   | TRANSIT OPERATIONS .....             | 3-33       |
| <br><b>APPENDICES</b> |                                      |            |
| A.                    | LIST OF PREPARERS                    |            |
| B.                    | DISTRIBUTION LIST                    |            |
| C.                    | SUMMARY OF EFFECTS                   |            |

**INDEX OF TABLES****CHAPTER 2**

|     |                                                            |      |
|-----|------------------------------------------------------------|------|
| 2-1 | Capital Funding Plan.....                                  | 2-14 |
| 2-2 | Summary of Preliminary Engineering Design Refinements..... | 2-15 |

**CHAPTER 3**

|      |                                                                     |      |
|------|---------------------------------------------------------------------|------|
| 3-1  | Summary of Changes in Environmental Effects.....                    | 3-1  |
| 3-2  | Anticipated Acquisitions and Displacements .....                    | 3-5  |
| 3-3  | Summary of Long-Term Visual Effects .....                           | 3-8  |
| 3-4  | Maximum Predicted CO Concentrations in parts per million (ppm)..... | 3-11 |
| 3-5  | Comparison of FTA Noise Impacts at Discrete Receptors.....          | 3-15 |
| 3-6  | Comparison of WMATA Noise Impacts at Discrete Receptors .....       | 3-19 |
| 3-7  | Comparison of Vibration Effects.....                                | 3-22 |
| 3-8  | Summary of Long-Term Effects on Water Resources.....                | 3-23 |
| 3-9  | Tysons Central 7 Station Peak Hour LOS and Delay (in seconds).....  | 3-29 |
| 3-10 | 2011 Tysons West Station Peak Hour LOS and Delay (in seconds).....  | 3-30 |
| 3-11 | 2025 Tysons West Station Peak Hour LOS and Delay (in seconds).....  | 3-30 |
| 3-12 | Summary of Transit Operations Effects.....                          | 3-34 |

**INDEX OF FIGURES****CHAPTER 1**

|     |                                        |     |
|-----|----------------------------------------|-----|
| 1-1 | Project Map.....                       | 1-3 |
| 1-2 | Regional Metrorail System (2005) ..... | 1-7 |

**CHAPTER 2**

|      |                                                           |      |
|------|-----------------------------------------------------------|------|
| 2-1  | Key to Design Changes .....                               | 2-17 |
| 2-2  | Alignment Change from I-66 to Dulles Connector Road ..... | 2-19 |
| 2-3  | Aerial Structure Types .....                              | 2-21 |
| 2-4  | Alignment Change in Tysons Corner .....                   | 2-23 |
| 2-5  | Proposed Cross-Section Changes along Route 7.....         | 2-25 |
| 2-6  | Tysons East Station Plan Comparison.....                  | 2-27 |
| 2-7  | Tysons East Station Longitudinal Section .....            | 2-29 |
| 2-8  | Tysons Central 123 Station Plan Comparison.....           | 2-31 |
| 2-9  | Tysons Central 123 Station Longitudinal Section .....     | 2-33 |
| 2-10 | Tysons Central 7 Station Plan Comparison .....            | 2-35 |
| 2-11 | Tysons Central 7 Station Longitudinal Section.....        | 2-37 |
| 2-12 | Tysons West Station Plan Comparison .....                 | 2-39 |
| 2-13 | Tysons West Station Longitudinal Section.....             | 2-41 |
| 2-14 | Wiehle Avenue Station Plan Comparison .....               | 2-43 |
| 2-15 | Wiehle Avenue Station Longitudinal Section.....           | 2-45 |
| 2-16 | Changes to West Falls Church Rail Yard .....              | 2-47 |

## TABLE OF CONTENTS

|           |                                                         |      |
|-----------|---------------------------------------------------------|------|
| 2-17      | Y-15 Yard Site: Proposed Phase 1 Construction Use ..... | 2-49 |
| 2-18      | Proposed Stormwater Management Facilities .....         | 2-51 |
| 2-19      | Potential Construction Staging Areas .....              | 2-53 |
| CHAPTER 3 |                                                         |      |
| 3-1       | Intersections Modeled for Air Quality Analysis .....    | 3-13 |
| 3-2       | Discrete Receptors Evaluated for Noise Impacts .....    | 3-17 |
| 3-3       | Water Resources .....                                   | 3-25 |



## LIST OF ACRONYMS

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|       |                                              |
|-------|----------------------------------------------|
| ADA   | Americans with Disabilities Act              |
| ARS   | Adopted Regional System                      |
| BMP   | Best Management Practice                     |
| BRT   | Bus Rapid Transit                            |
| CBPA  | Chesapeake Bay Preservation Area             |
| CLRP  | Constrained Long-Range Plan                  |
| CMP   | Congestion Management Plan                   |
| CO    | Carbon Monoxide                              |
| CTB   | Commonwealth Transportation Board            |
| dBA   | A-Weighted Decibels                          |
| DIAAH | Dulles International Airport Access Highway  |
| DRPT  | Department of Rail and Public Transportation |
| EA    | Environmental Assessment                     |
| EIS   | Environmental Impact Statement               |
| EQC   | Environmental Quality Corridor               |
| FAA   | Federal Aviation Administration              |
| FHWA  | Federal Highway Administration               |
| FONSI | Finding of No Significant Impact             |
| FTA   | Federal Transit Administration               |
| FY    | Fiscal Year                                  |
| HOV   | High Occupancy Vehicle                       |
| ITS   | Intelligent Transportation Systems           |
| LPA   | Locally Preferred Alternative                |
| LOS   | Level of Service                             |
| MIS   | Major Investment Study                       |
| MOT   | Maintenance of Traffic                       |
| MWAA  | Metropolitan Washington Airports Authority   |

## LIST OF ACRONYMS

|            |                                                                                                   |
|------------|---------------------------------------------------------------------------------------------------|
| MWCOG      | Metropolitan Washington Council of Governments                                                    |
| NAAQS      | National Ambient Air Quality Standards                                                            |
| NEPA       | National Environmental Policy Act                                                                 |
| O&M        | Operations & Maintenance                                                                          |
| PE         | Preliminary Engineering                                                                           |
| ROD        | Record of Decision                                                                                |
| SAFETEA-LU | Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003 – A Legacy for Users |
| S&I        | Service and Inspection                                                                            |
| SIP        | State Implementation Plan                                                                         |
| TEA-21     | Transportation Equity Act for the 21 <sup>st</sup> Century                                        |
| TIFIA      | Transportation Infrastructure Finance and Innovation Act                                          |
| TIP        | Transportation Improvement Program                                                                |
| VDOT       | Virginia Department of Transportation                                                             |
| VTA        | Virginia Transportation Act                                                                       |
| WMATA      | Washington Metropolitan Area Transit Authority                                                    |
| YOE        | Year of Expenditure                                                                               |

# 1 **PURPOSE AND NEED FOR THE PROPOSED ACTION**

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This Environmental Assessment (EA) has been prepared by the Federal Transit Administration (FTA) in conjunction with the Virginia Department of Rail and Public Transportation (DRPT) in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 USC 4321-4347), as amended, to address potential environmental impacts associated with design refinements to the Dulles Corridor Metrorail Project (formerly known as the Dulles Corridor Rapid Transit Project).

The EA describes the modifications that have been made to the design of the project since the publication of the *Dulles Corridor Rapid Transit Project Final Environmental Impact Statement and Section 4(f) Evaluation* (Final EIS) in December 2004 and since the issuance of a Record of Decision (ROD) for the project by FTA in March 2005. This document presents the anticipated changes in effects from those documented in the Final Environmental Impact Statement (EIS).

The design refinements came about as the project proceeded through the preliminary engineering phase of project development. Some of the refinements resulted from a greater understanding of site conditions, the planned construction approach, and the need to comply with design standards or regulatory criteria. However, many of the design refinements were required because an updated capital cost estimate for the project significantly exceeded the costs previously identified in the Final EIS.

This chapter describes the basis for the EA and summarizes the purpose and need for the Dulles Corridor Metrorail Project based on the information presented in the Final EIS. The role of the EA in supporting the overall project development process and public and agency coordination efforts for the EA are also described.

## **1.1 BASIS FOR THE ENVIRONMENTAL ASSESSMENT**

DRPT, in cooperation with the Washington Metropolitan Area Transit Authority (WMATA), Fairfax County, Loudoun County, and the Metropolitan Washington Airports Authority (MWAA), is planning to construct a 23.1-mile extension of the Metrorail system in the rapidly growing Dulles Corridor in Fairfax and Loudoun counties, Virginia. As shown in Figure 1-1, the project will extend Metrorail service from the existing Orange Line in Fairfax County through Tysons Corner to Reston, Herndon, Washington Dulles International Airport (Dulles Airport), and beyond the airport to Route 772 in Loudoun County. Most of the extension will be constructed in the median of the Dulles International Airport Access Highway (DIAAH) and Dulles Connector Road, but the alignment also provides direct service to Tysons Corner and Dulles Airport. The extension will include 11 new Metrorail stations, a new rail yard on Dulles Airport property, and improvements to the existing rail yard at West Falls Church.

DRPT is currently seeking financial assistance from FTA for the first phase of the project (the Extension to Wiehle Avenue), which will extend from the existing Metrorail Orange Line near the West Falls

Church Station to Wiehle Avenue in Reston, and plans to apply for separate FTA funding for the subsequent extension west of Wiehle Avenue to Dulles Airport and eastern Loudoun County (the Extension to Dulles Airport/Route 772). FTA's *Annual Report on New Starts* for Fiscal Year 2007 (February 2006) documents the current performance of the Extension to Wiehle Avenue relative to FTA's New Starts evaluation criteria.

In July 2004, the Dulles Corridor Metrorail Project entered the preliminary engineering phase of project development. Since the publication of the Final EIS, the design of the Dulles Corridor Metrorail Project has evolved based upon additional engineering analyses; more detailed information on site conditions, soils, and anticipated construction techniques; and the need to reduce capital costs. Several refinements affecting the Extension to Wiehle Avenue phase are being incorporated into the project's design, some of which require additional environmental review to ensure the project's continued compliance with NEPA. FTA has prepared this EA in conjunction with DRPT to assess the potential environmental impacts associated with the design refinements and compare the impacts to those associated with the Wiehle Avenue Extension documented in the project's Final EIS. In addition, the EA includes an updated assessment of any potential temporary impacts associated with the project's construction.

In accordance with the terms of the project's Record of Decision, FTA will review the findings presented in this document to determine whether the design refinements substantially change the project definition or whether the design refinement results in new significant environmental impacts that were not evaluated in the Final EIS. This EA and associated public involvement activities will also be used to satisfy applicable WMATA Compact requirements associated with the design refinements.

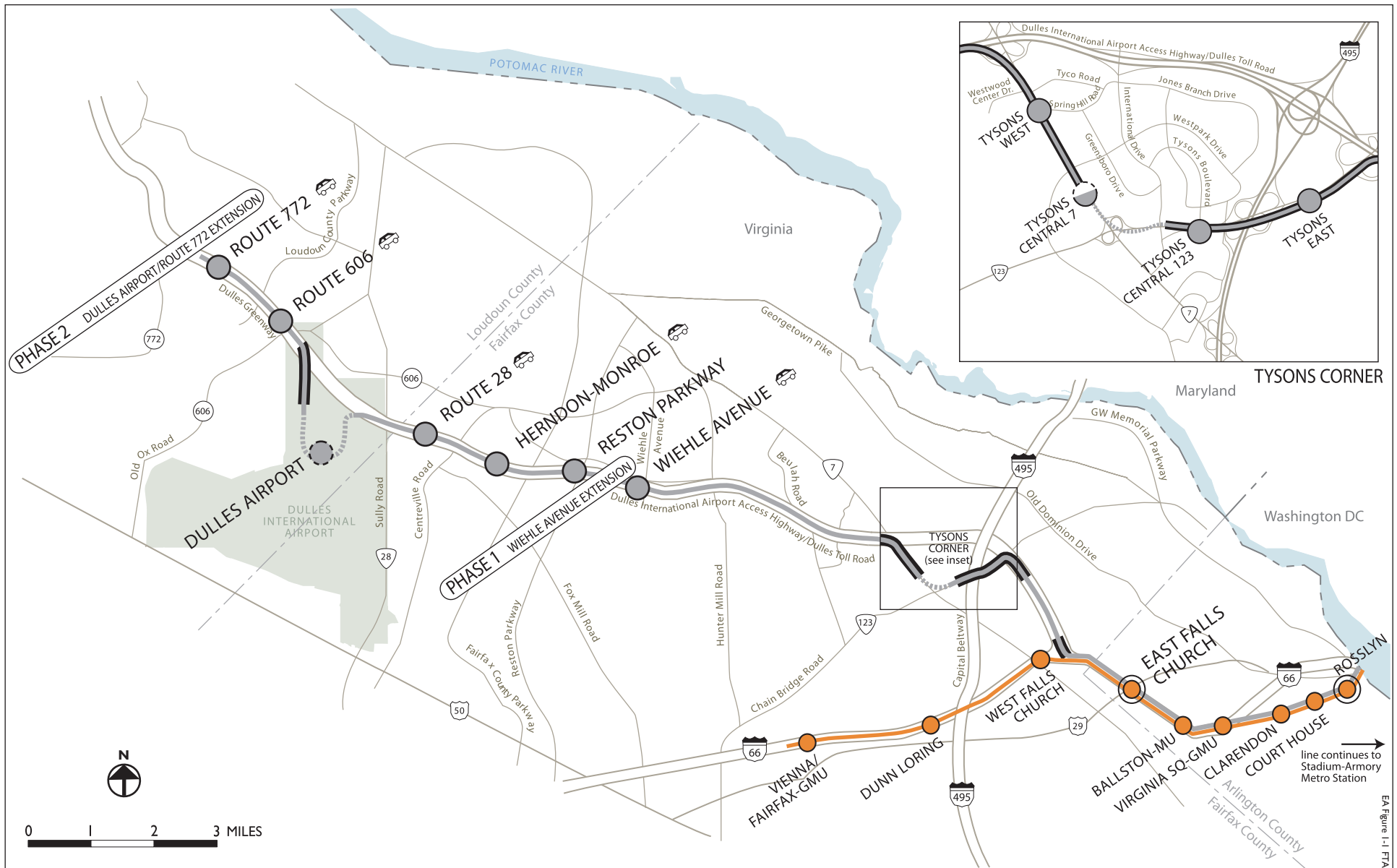
## 1.2 PURPOSE AND NEED

The Dulles Corridor, located in Northern Virginia, west of the nation's capital, is home to several of the Washington metropolitan region's most dynamic and rapidly growing activity centers. Extending from the vicinity of West Falls Church Metrorail Station in Fairfax County, Virginia, to Route 772 in Loudoun County, Virginia, the 23.1-mile corridor includes the high-density office buildings and regional shopping centers of Tysons Corner; the residences, shopping centers, and suburban office complexes of the Reston-Herndon area; the rapidly growing Dulles Airport; and an emerging residential and employment center in eastern Loudoun County.

With the Dulles Corridor's increasing attractiveness as a place to live and work, travel in the corridor has been steadily growing over the past 15 years. This increasing travel demand has strained the capacity of the existing transportation network, causing delays and increasing travel times between activity centers within the corridor and the region. The central and eastern portions of the corridor currently experience some of the region's worst traffic congestion.

Over the next 25 years, continued development of the corridor as a regional employment destination and the maturation of residential communities and commercial areas within the corridor are expected to far outpace the growth of the region as a whole. Parallel increases in travel demand are projected to exceed the capacity of the corridor's already overburdened transportation system, resulting in severely congested conditions on numerous routes, further degradation of air quality, and a threat to the valued quality of life in the Dulles Corridor.

Planned roadway enhancements in the corridor are not expected to relieve the current levels of congestion, and the ability to further expand roadway capacity beyond currently planned improvements is



# Legend

- Existing Orange Line Track and Station
- Transfer Station
- Parking
- New Station
- Partially Below Surface Station
- Underground Station
- Surface Track
- Elevated Track
- Underground Track

Figure I-1  
Project Map



constrained by right-of-way limitations and federal air quality standards. For these reasons, alternative transportation improvements in the Dulles Corridor that would increase capacity and improve mobility without further expanding roadways have long been the focus of public and private sector studies.

The purpose of the Dulles Corridor Metrorail Project is to provide high-quality, high-capacity transit service in the Dulles Corridor. The introduction of Metrorail to the corridor would offer an alternative means of travel for the growing number of residents, employees, and visitors in the Dulles Corridor and, as a link to the Metrorail system, would improve mobility throughout the region. By providing a high-capacity transportation choice for travelers, the proposed project would be better able to meet the anticipated increases in travel demand and help reduce future congestion in the corridor. Moreover, the ability of the proposed improvements to increase person-moving capacity over long distances with fewer numbers of vehicles should help minimize future increases in vehicle miles traveled in the corridor and vehicle emissions.

## 1.3 PLANNING CONTEXT

Over the last four decades, the transportation needs of the Dulles Corridor and potential improvements for the corridor have been the subject of several studies conducted by public agencies and private businesses. Most of the studies have identified mass transit alternatives as part of the transportation solution for the corridor. Numerous comprehensive and regional plans have included references to specific transit alternatives, supportive land use measures, and potential funding sources for the Dulles Corridor. Proposed transit solutions for the Dulles Corridor have also been recognized at the federal level, including the identification of the Dulles Corridor Metrorail Project as one of the candidate projects to receive federal funding in the *Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003 – A Legacy for Users* (SAFETEA-LU), the federal law that authorizes the government to fund transportation projects through 2009. The project was also included in the previous authorization, the *Transportation Equity Act for the 21st Century* (TEA-21).

### 1.3.1 Project History

Rapid transit in the Dulles Corridor was initially explored in the 1950s as part of the planning of Dulles Airport. At that time, the median of the DIAAH, previously known as the Dulles Airport Access Road, was reserved for future transit access to the airport. Subsequently, the need for transit in the corridor was evaluated in the late 1960s during the planning of the regional Metrorail system. While Metrorail's original Adopted Regional System (ARS) did not include a connection to Dulles Airport, extending rapid transit service to the airport has remained a local and regional goal. The current ARS is shown in Figure 1-2.

In the 1990s, providing a rapid transit connection to Dulles Airport was evaluated in the *Dulles Corridor Transportation Study* (1997) and the *Supplement to the Dulles Corridor Transportation Study* (1999). The former, a Major Investment Study (MIS), recommended developing a rail line between the Metrorail Orange Line and Route 772 primarily using the median of the DIAAH.

More recently, these recommended transit alternatives for the Dulles Corridor were evaluated in the *Dulles Corridor Rapid Transit Project Draft Environmental Impact Statement and Section 4(f) Evaluation* (Draft EIS) published in June 2002. Based on the analysis contained in the Draft EIS, public comments received on the document, and agency coordination, in late 2002 an extension of the WMATA Metrorail system from the existing Orange Line to Route 772 in Loudoun County was selected as the

Locally Preferred Alternative (LPA) for the project by both the Commonwealth Transportation Board (CTB) and the WMATA Board of Directors. The rail line would primarily use the median of the DIAAH, leaving the highway to directly serve Tysons Corner and Dulles Airport. Unlike the recommendations of the MIS Supplement, the selected LPA was not proposed to be developed through a phased implementation program that included bus rapid transit as an interim step to rail.

Following publication of the Draft EIS and selection of the Metrorail Alternative as the LPA, additional agency and public coordination resulted in revisions to the selected LPA. The potential effects of these changes—which included design modifications to the preferred alignment and facilities, adjustment of opening years, and scheduling construction of the project in two phases—were documented in the *Dulles Corridor Rapid Transit Project Supplemental Draft Environmental Impact Statement and Section 4(f) Evaluation* (Supplemental Draft EIS) published in October 2003. Based on the analysis contained in the Supplemental Draft EIS, public comments received on the document, and agency coordination, the CTB approved the revision of the LPA in March 2004 and then recommended its implementation in the *Public Hearing Report for the Supplemental Draft EIS*. In April 2004, the WMATA Board of Directors also approved the revision of the LPA.

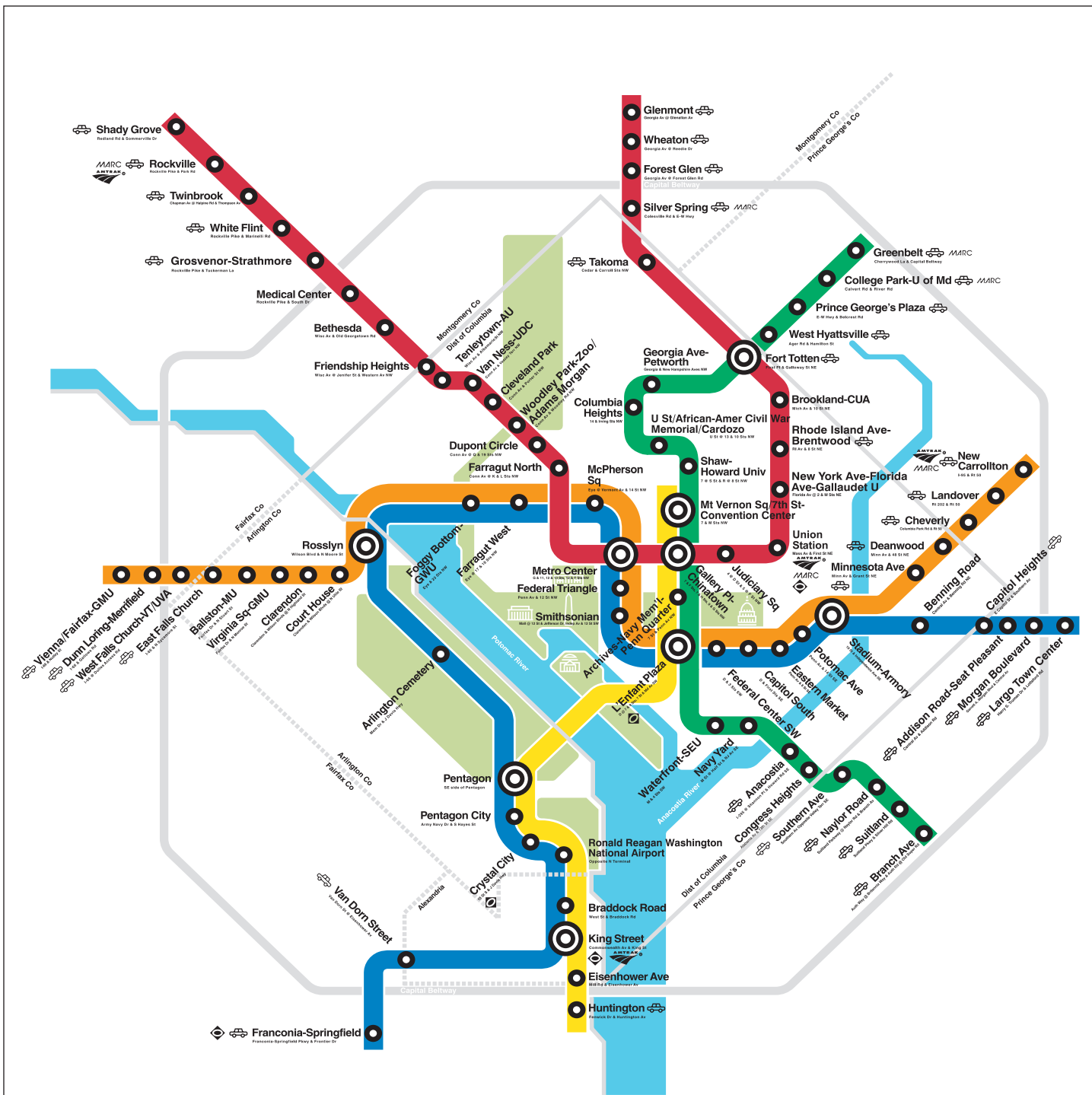
The Final EIS, published in December 2004, was prepared to identify the improvements of the LPA, document the basis for the decision, and commit to mitigation measures that will offset adverse effects. A comparative evaluation of the No Build Alternative and LPA and associated costs was included, as well as public comments received on the Draft EIS and Supplemental Draft EIS and responses to those comments. Based on the information contained in the Draft EIS, the Supplemental Draft EIS, and the Final EIS, a Record of Decision was issued by FTA in March 2005. The ROD describes the project, summarizes the environmental findings from the EIS documents, and identifies the mitigation requirements associated with project implementation.

In addition to FTA, the Federal Aviation Administration (FAA) participated in the project's NEPA review as a cooperating agency because construction of the project requires the use of airport property for non-airport purposes. FAA determined that the use of airport property for the project is consistent with the terms of Section VII.G of FAA's *Policy and Procedures Concerning the Use of Airport Revenue* (64 FR 7696-7723) and issued a separate ROD in July 2005.

### 1.3.2 Local and Regional Plans

Several local and regional plans identify the Dulles Corridor Metrorail Project as an element of the future transportation network. The project or supportive measures for the project are included in these plans as essential elements in meeting future transportation and development goals.

- *Fairfax County Comprehensive Plan* (2000, amended through 2002) includes specific measures supporting transit improvements, calling for dense development in the corridor. Higher-density, mixed-use development will be allowed in Tysons Corner and Reston near proposed rail stations. The Transportation Plan Map (1991, amended through 2001) accompanying the Comprehensive Plan identifies the Dulles Corridor as an enhanced public transportation corridor, in which future rapid rail transit would be developed.
- *Loudoun County Revised General Plan* (2001, amended through 2005) allows for higher-density development adjacent to transit stations along the Dulles Greenway. The plan also includes public support for transit services that would use the corridor, such as carpools,



EA Figure I-2\_FTA

#### Legend

- Red Line • Glenmont to Shady Grove
- Orange Line • New Carrollton to Vienna / Fairfax-GMU
- Blue Line • Franconia-Springfield to Largo Town Center
- Green Line • Branch Ave to Greenbelt
- Yellow Line • Huntington to Mt Vernon Sq / 7th St - Convention Center



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Figure I-2

## Regional Metrorail System (2005)





- vanpools, bus and rail services, and other alternative modes, with specific funding support for bus services.
- *Loudoun County Revised Countywide Transportation Plan* (2001) identifies the project as a County priority, and encourages higher-density, mixed-use development in transit nodes along the southeastern end of the Dulles Greenway to support the development of rail in this corridor. *2003 Update to the Financially Constrained Long-Range Transportation Plan for the National Capital Region* (2004) identifies the project as the Dulles Corridor Rapid Transit Project, a 23.1-mile extension of the existing Metrorail system from the Orange Line in Fairfax County through Tysons Corner to Dulles Airport and Route 772 in Loudoun County. The project will be constructed in two phases.
  - *Transportation Improvement Program for the Washington Metropolitan Region FY2006-2011* (2005) includes construction of Phase 1 of the Dulles Corridor Metrorail Project from East Falls Church Metrorail Station to Wiehle Avenue.
  - *Plan to Improve Air Quality in the Washington, DC-MD-VA Region, State Implementation Plan ("Severe Area SIP")* (2004) identifies the Dulles Corridor Metrorail Project, as defined in the Transportation Improvement Plan (TIP), as a transportation emissions control measure intended to bring the region into attainment for ozone. The Constrained Long Range Transportation Plan (CLRP) and TIP have been found to be in conformity with the SIP.

### 1.3.3 Environmental Review and Project Development Process

DRPT is seeking Federal New Starts funding from FTA for the Extension to Wiehle Avenue phase of the Dulles Corridor Metrorail Project and plans to seek separate FTA funding for the subsequent Extension to Dulles Airport/Route 772 phase. Part of FTA's project development process is preparation of environmental documentation in accordance with NEPA.

NEPA requires that federal agencies consider the potential impacts of projects involving federal action on the natural and human environments. If substantial environmental impacts are anticipated and cannot be avoided, a plan for mitigating these impacts must be proposed. As part of the decision-making process, reasonable alternatives that would avoid or reduce adverse impacts must be considered, analyzed, and documented. In addition, the public must be given adequate opportunity to comment on a proposed project, and the project must be coordinated with appropriate agencies. This evaluation of environmental consequences is required to assist decision-makers and the public in evaluating the relative merits of the project and in selecting a preferred course of action from the alternatives evaluated.

The level of documentation required by FTA regulations for compliance with NEPA varies depending on the class of the proposed action. Class I actions—such as construction of new highway or rail transit facilities, extensions of rail transit facilities, or construction of separate roadways for buses or High Occupancy Vehicles (HOVs)—require the preparation of an EIS. An EIS describes in detail how project actions would affect the environment, as well as any proposed mitigation.

As described in Section 1.3.1, a series of EIS documents was prepared for the Dulles Corridor Metrorail Project, culminating in FTA issuing a ROD for the project in March 2005 and FAA issuing a separate ROD in July 2005. Design refinements developed after the issuance of the RODs could result in impacts different than those identified in the Final EIS for the project. To ensure continued compliance with NEPA, this EA was prepared to determine whether the preliminary engineering design refinements result in new

significant environmental impacts that were not documented in the Final EIS and RODs. Following public review and comment on the document, FTA will review the findings of this EA and the Public Hearing Report to decide whether to revise the project's March 2005 ROD, issue a separate "Finding of No Significant Impacts" (FONSI), or prepare a Supplemental EIS.

## **1.4 PUBLIC INVOLVEMENT AND AGENCY COORDINATION**

A comprehensive public involvement program has been implemented throughout the project development and environmental review process to support decision-making for the Dulles Corridor Metrorail Project. In addition, extensive coordination efforts with federal, state, and local resource agencies were conducted throughout the NEPA process. A summary of public involvement and agency coordination during the EIS process is included in Chapter 11 of the Final EIS. For the EA, DRPT incorporated public involvement activities in its ongoing outreach program for the preliminary engineering efforts. The public involvement program used to support the EA also meets necessary WMATA Compact requirements.

The Federal Highway Administration (FHWA), FAA, Virginia Department of Transportation (VDOT), WMATA, MWAA, and Fairfax County are all participants in the project and have been actively engaged in the decision-making for the project including the recent cost reduction efforts. In addition, some of the design changes recently implemented, such as those to the future layout of Route 7, were made at the request of the agencies. Formal agency coordination occurs at least bi-weekly through a Technical Advisory Group.

Public outreach for the design refinements formally began on August 10, 2005, with the announcement of the refinements. Following this announcement, project staff presented the design refinements at project update meetings held with elected officials, business leaders, corridor citizens, and home owners. Between August 2005 and January 2006, more than 60 meetings were held with stakeholders throughout the corridor. The public also had the opportunity to learn about the design refinements at the following special community events where project information was displayed: South Riding Fall Business Expo (September 10, 2005), Falls Church Fall Festival (September 17, 2005), Fall for Fairfax and Dulles Plane Pull (October 1, 2005), and Falls Church Chamber of Commerce Business Expo (November 4, 2005).

A public information meeting was held on December 8, 2005, at Spring Hill Elementary School, 8201 Lewinsville Road, McLean, Virginia. At this meeting, the proposed design refinements for the project were presented and project staff responded to public questions. The meeting used a workshop format with information stations, an oral presentation, and detailed handouts. Before and after the presentation, the public was able to circulate among information stations, and project staff was available to answer questions.

The information session was announced through a number of communications channels, including: direct mail to area residents, door-to-door outreach to businesses, email alerts, press announcements and on the project's Web site ([www.dullesmetro.com](http://www.dullesmetro.com)). The team also distributed information through key third-party groups, such as homeowners associations, civic groups and property management companies. Fliers were posted at area business locations, libraries and community centers. Local community newspapers posted meeting announcements in their community calendars and referenced the upcoming meeting in news articles.

More than 200 people attended the public information meeting. The project team received feedback about the Metrorail project including some of the design refinements. Many people supported the elimination of the service roads along Route 7 in Tysons Corner and the team's close coordination and responsiveness to property owners affected by the project. Concerns raised about the project centered around access to the new Metrorail stations in Tysons Corner. More specifically, citizens expressed concern about sidewalk extensions beyond the project limits that would provide connectivity to the stations; the lack of parking at the stations; and shuttle service and/or lack of information regarding shuttle service to future stations.

Although the overall sentiment about the elimination of the service roadways along Route 7 was positive, some questions were raised by local business owners and citizens regarding future access to businesses along Route 7 due to the limitations on left- and u-turns as a result of the Metrorail alignment in the median of Route 7 and the elimination of the service roads. Residents of the neighborhood adjacent to the West Falls Church Service and Inspection (S&I) Yard asked questions about planned substations, soil erosion along Pimmit Run, vegetation screening for a new stormwater pond at the yard, and noise.

Following its publication, the EA will be distributed to the agencies, organizations, elected officials, and public libraries listed in Appendix B. A complete copy of the EA will also be posted to the project's website ([www.dullesmetro.com](http://www.dullesmetro.com)) and made available for review at DRPT's project office in Vienna, Virginia. A notice of availability for the EA will be published in local newspapers and on the project's website. Recipients of the project's Final EIS will also be notified via mail of the EA availability.

A public hearing on the EA will be held to provide citizens and agencies an opportunity to comment on the proposed design refinements to the project. Information on the date, time, and location of this hearing will be posted on the project's website or can be obtained by contacting the project's information line at (703) 288-7000. Comments on this document may be made orally at the public hearing or submitted in writing.

After the public hearing and the close of the comment period, a public hearing report will be prepared to formally document and respond to comments received at the hearing and during the comment period. FTA will then review the findings of the EA and the responses to comments and will make its formal NEPA determination on the design refinements. The public hearing report will also be made available for review in accordance with WMATA's Compact procedures. Following FTA's formal NEPA determination on the design refinements, the WMATA Board will subsequently take the necessary actions to meet applicable Compact requirements.

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# 2

## ALTERNATIVES EVALUATED

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Since the publication of the Final Environmental Impact Statement (EIS) in December 2004, the design of the project's initial construction phase—the Extension to Wiehle Avenue—has evolved from conceptual plans to preliminary engineering. The additional engineering analysis has yielded more detailed information on site conditions, soils, and anticipated construction techniques. This information, in combination with efforts to reduce project costs, has resulted in a number of changes to the plans presented in the Final EIS.

This chapter describes the two alternatives being evaluated in this Environmental Assessment (EA): the **Final EIS Wiehle Avenue Extension** and the **Preliminary Engineering (PE) Wiehle Avenue Extension**. The first two sections provide a description of the alignment, stations, yard and ancillary facilities, and Metrorail operations and ridership for each alternative. Section 2.1 describes the Wiehle Avenue Extension that was evaluated in the Final EIS and Section 2.2 describes the design changes adopted during Preliminary Engineering (the Preliminary Engineering Wiehle Avenue Extension). In determining the potential environmental effects associated with these design refinements, the impacts reported in the Final EIS serve as the basis for comparison. Section 2.3 provides a summary of the capital and operating costs for each alternative, and Section 2.4 provides a summary of the design refinements.

### 2.1 FINAL EIS WIEHLE AVENUE EXTENSION

This section includes a description of the stations, alignment, yard facilities, ancillary facilities, operations, and ridership associated with the Final EIS Wiehle Avenue Extension. The Final EIS Wiehle Avenue Extension would be constructed from the Metrorail Orange Line in the vicinity of the West Falls Church Station to Wiehle Avenue, which would function as an interim terminal station. The Final EIS Wiehle Avenue Extension is scheduled to be completed and operational by late 2011.

#### 2.1.1 Final EIS Wiehle Avenue Extension Alignment

The **Final EIS Wiehle Avenue Extension** would connect to the Orange Line between the East Falls Church and West Falls Church stations. The tracks would diverge from the Orange Line tracks on flyover structures, turning north and first passing over the westbound lanes of I-66, then over the outbound bus ramp between the West Falls Church Station and the Dulles Connector Road. The tracks would continue on an aerial structure to the median of the Dulles Connector Road, returning to grade just south of Idylwood Road.

The alignment would leave the Dulles Connector Road at the Route 123 interchange, transitioning to an aerial structure near Chain Bridge Road and passing through the Route 123 interchange on flyover bridges. The aerial alignment would then proceed along the north side of Route 123 to the Capital

Beltway (I-495), with an aerial station (Tysons East Station) located in the northwest quadrant of the intersection of Scotts Crossing Road/Colshire Drive and Route 123.

From the Tysons East Station, the alignment would proceed west, passing over the Capital Beltway and continuing to the core of Tysons Corner. The alignment would include two stations in the core of Tysons Corner: Tysons Central 123 and Tysons Central 7. Neither of these stations would have Kiss & Ride and park-and-ride facilities, because the stations are intended to facilitate pedestrian access to and from the surrounding activity centers.

After passing through the Tysons Central 123 Station, the alignment would transition underground approximately 400 feet to the west. It would travel underground along the north side of Route 123 to the Route 123/Route 7 interchange, curve westward, and then continue underground along the south side of Route 7 to the Tysons Central 7 Station which is located on the south side of Route 7, between the Route 7/Westpark Drive intersection and the Route 123/Route 7 interchange. The underground alignment would include a double crossover outbound of the Tysons Central 7 Station, just east of Westpark Drive.

West of Westpark Drive, the alignment would transition from an underground to an aerial alignment, running along the south side of Route 7 to an aerial station, Tysons West Station, at the western edge of Tysons Corner. West of the Tysons West Station, the aerial alignment would continue along Route 7. At the Dulles International Airport Access Highway (DIAAH), the alignment would pass over the interchange ramps and continue west on the DIAAH, transitioning to grade approximately 1,600 feet west of Route 7.

The alignment would continue west at-grade in the median of the DIAAH. In the vicinity of Trap Road, the alignment would incorporate various design provisions so that the possible future construction of a median station at Wolf Trap National Park for the Performing Arts (Wolf Trap) would not be precluded. The alignment would continue at-grade in the DIAAH median to the Wiehle Avenue Station, a median station located approximately 500 feet west of the Wiehle Avenue overpass, where the Dulles Toll Road was previously realigned to accommodate a transit station. The DIAAH would be similarly realigned for the station and its tail tracks.

The Final EIS Wiehle Avenue Extension would end at a point approximately 2,000 feet west of the Wiehle Avenue Station. This section would include tail tracks with a pocket track.

## 2.1.2 Final EIS Wiehle Avenue Extension Stations

The Final EIS Wiehle Avenue Extension would include five new Metrorail stations:

- **Tysons East Station.** This station is an aerial facility located at the intersection of Scotts Crossing Road/Colshire Drive and Route 123 that would be accessible from the street level on the north side of Route 123, and from a pedestrian bridge touching down on the south side of Route 123 near Colshire Drive. The station facilities along Colshire Drive would include bus bays and Kiss & Ride spaces.
- **Tysons Central 123 Station.** This station is an aerial facility located in the core of Tysons Corner at the intersection of Route 123 and Tysons Boulevard and would be partially aerial and partially on retained fill. The station would have two entrances, one in the northwest quadrant of the intersection of Tysons Boulevard and Route 123, and one at Tysons Corner Center mall on the south side of Route 123. The north station facilities would include bus

bays and a new bus-only turn lane along the west side of Tysons Boulevard. The south station facilities would include bus facilities on the north side of the mall to provide feeder bus service to the station.

- **Tysons Central 7 Station.** This station would be located underground near Pike 7 Plaza on the south side of Route 7, between the Route 7/Westpark Drive intersection and the Route 123/Route 7 interchange. The station would be approximately 75 feet below ground, with entrances on the north and south sides of Route 7. Underground walkways would provide access to the station. The Tysons Central 7 Station would not include off-street bus bays.
- **Tysons West Station.** This station is an aerial facility located on the south side of Route 7 between Westwood Center Drive and Spring Hill Road, with station entrances at the south end of the station near Spring Hill Road and a pedestrian overpass over Route 7. Off-street bus bays and a Kiss & Ride area would be located between Tyco Road and Spring Hill Road, with access into the facilities via Tyco Road. This would be a new entrance and would be protected by a new traffic signal on Tyco Road.

A 500-space park-and-ride facility may be constructed near the bus bays and short-term parking as part of future redevelopment. The Tysons West Station would also include a pocket track west of the station platform. Pocket tracks would be located between the main tracks and would be used to store out-of-service trains or equipment, and to provide trains turn-around capability for short-run service.

- **Wiehle Avenue Station.** This station is an at-grade facility in the median of the DIAAH west of the Wiehle Avenue overpass. Station facilities on the south side of the Dulles Toll Road would include five bus bays on the eastbound ramp, an entrance pavilion, and a paved walkway extending from the pavilion to Wiehle Avenue. On the north side of the Dulles Toll Road, the pedestrian bridge would connect to station facilities, including twelve revenue bus bays, Kiss & Ride spaces, and a multi-level park-and-ride structure. The station facilities would replace the current Reston East Park-and-Ride and would be designed to accommodate up to 2,300 parking spaces and future development. A second vehicular entrance to the station facilities would be provided by an extension of the present access road and conversion of a private road to public use. For the Final EIS Wiehle Avenue Extension, the Wiehle Avenue Station would serve as an interim terminal station.

### 2.1.3 Final EIS Wiehle Avenue Extension Yard Facilities

The Final EIS Wiehle Avenue Extension would include a new yard lead into the existing West Falls Church Storage and Inspection (S&I) Yard. The yard lead would connect to the loop track on the north side of the yard, extending eastward and passing under the eastbound travel lanes of the Dulles Connector Road before surfacing in the median of the Dulles Connector Road. Here, the yard lead would be located between the inbound and outbound revenue tracks.

In addition, eight storage tracks would be added within the loop track of the West Falls Church S&I Yard, and a cover box would be constructed over the yard's existing loop track and a portion of the new yard lead. The storage tracks would have the capacity to store 42 rail cars, with room to maneuver an additional 6 cars, for Metrorail operations in the Dulles Corridor.

The Final EIS Wiehle Avenue Extension would also require expansion of the maintenance building at the yard. Improvements to the maintenance building would include the addition of two service tracks with four maintenance bays, which could service up to eight rail cars. Expansion of the maintenance building would require relocation of the current vehicle access road and construction of a retaining wall adjacent to the westbound lanes of I-66. Some employee parking, loading docks, and ramps would also be relocated within the yard. These yard improvements would be located within existing public rights-of-way.

The Final EIS Wiehle Avenue Extension would not include any improvements or construction activities at the future S&I Yard Site 15, which would be constructed as part of the project's second phase, the Extension to Dulles Airport/Route 772.

#### **2.1.4 Final EIS Wiehle Avenue Extension Ancillary Facilities**

The Final EIS Wiehle Avenue Extension would include additional ancillary facilities, such as traction power substations, tie-breaker stations, and stormwater management facilities. Traction power substations are typically one-story buildings of approximately 8,000 square feet that house facilities to supply direct current power for the rail system. Tie-breaker stations are one-story buildings of approximately 900 square feet that house equipment to break the rail line into sections, allowing power in one or more sections to be shut down for maintenance without affecting the power supply of the rest of the system.

The traction power substations and tie-breaker stations included in the Final EIS Wiehle Avenue Extension were sited based on systems engineering requirements, environmental conditions, and right-of-way constraints. A power analysis was conducted to determine the number and size of substations required and the optimal spacing for these stations. Based on this analysis, the Final EIS Wiehle Avenue Extension would include 11 traction power substations and 4 tie-breaker stations.

The Final EIS Wiehle Avenue Extension would also require 11 stormwater management facilities, most located along the Dulles Toll Road.

#### **2.1.5 Final EIS Wiehle Avenue Extension Operations**

With the opening of the Final EIS Wiehle Avenue Extension, the Dulles Corridor Metrorail service would operate as a new line between the Wiehle Avenue Station and the Stadium-Armory Station in the District of Columbia. This service would operate in both directions throughout the entire day and be fully integrated with the existing Orange Line service. The supplemental Orange Line service (known as "trippers") that currently operates during peak periods between the West Falls Church and New Carrollton stations would be discontinued and replaced with a new supplemental service operating between the Vienna and Largo stations. These changes would provide current Orange Line riders with today's service levels during peak-periods and additional service during off-peak periods for riders between the East Falls Church and Stadium-Armory stations.

Service on the Dulles Line would have the same operating hours as today's Metrorail service. In the opening year (2011), the Dulles Line would operate with a mix of six- and eight-car trains during peak periods. In the off-peak periods, four-car trains would be used. In the forecast year (2025), the Dulles Line would operate with all eight-car trains during peak periods. In the off-peak periods, four-car trains would be used. Consistent with the Washington Metropolitan Area Transit Authority's (WMATA's) future operating plan for the entire Metrorail system, the Dulles Line would operate on 7-minute



headways (eight to nine trains per hour) in the peak hours (6:00 to 9:30 a.m. and 3:30 to 6:30 p.m. on weekdays) and 12-minute headways (five trains per hour) during off-peak hours, except after 10:00 p.m., when trains would run every 20 minutes. Combined with planned changes to the headways and routing of trains on the Orange, Blue, and Yellow Lines, the Dulles Corridor service would result in approximately 26 to 27 trains per hour through the Rosslyn portal during peak periods. During the off-peak hours and over weekends, Orange Line, Blue Line, and Dulles Corridor service would run on 12- to 20-minute headways (9-15 trains per hour).

The Final EIS Wiehle Avenue Extension would also include express and feeder bus service to the new Metrorail stations along the Dulles Corridor. Express buses would provide connections between Wiehle Avenue Station, the Herndon-Monroe transit center, Dulles Airport, the Dulles North Transit Center, and a new transit center in the vicinity of the future Route 772 Station. This service would have frequencies comparable to proposed Metrorail headways. Where necessary, existing bus routes would be realigned to provide better service to the proposed Metrorail stations in the corridor, and numerous routes would be eliminated and replaced by the modified routes or the Wiehle Avenue Extension service. The service frequencies would be modified for other routes to be more consistent with the new transit service in the corridor, reduce duplication of service, and in some cases to better coincide with Metrorail headways. These express and feeder bus routes would be operated by WMATA, Fairfax County, and Loudoun County.

### **2.1.6 Final EIS Wiehle Avenue Extension Ridership**

The Final EIS Wiehle Avenue Extension is expected to generate 34,400 new transit trips in the Washington metropolitan region in the forecast year (2025). Total transit ridership in the corridor would include an average of 73,300 weekday riders, including 68,500 Metrorail riders and 4,800 express bus riders who would not transfer to Metrorail.

### **2.1.7 Final EIS Wiehle Avenue Extension Construction Activities**

The Final EIS Wiehle Avenue Extension would connect with the Orange Line at a point between the East and West Falls Church Metrorail stations. This connection would require new special track work including turnouts and a double crossover, and some realignment of the existing Orange Line track. Due to the proximity of the new track construction to the eastbound lanes of I-66, during construction there may be limited closures of the inside shoulder and potentially the inner lanes of I-66 during off-peak and overnight periods. WMATA would be able to maintain Orange Line operations by single-tracking trains to implement such improvements. If construction would require closure of both tracks, most likely on weekends, then bus service would be provided between East Falls Church and West Falls Church stations.

Improvements at the West Falls Church S&I Yard would affect yard operations during construction. In addition, yard modifications would require work within the north concrete embankment of I-66; however, use and conveyance of I-66 right-of-way would not preclude potential improvements for I-66. The new yard lead for the Final EIS Wiehle Avenue Extension would cross under the eastbound lanes of the Dulles Connector Road and connect to the Dulles main line in the median of the Connector Road (roughly 1,000 feet north of the West Falls Church Station). Construction of this lead track would most likely use a cut and-cover technique that would require building a Dulles Connector Road temporary detour for the eastbound lanes.

At the eastern edge of Tysons Corner, construction of the aerial structure transitioning from the Dulles Connector Road to Route 123 would require temporary lane closures on both the Connector Road and Route 123. The pier placements for the aerial structure crossing Route 123 will be coordinated to not preclude future improvements to Route 123.

In Tysons Corner, the Final EIS Wiehle Avenue Extension requires slightly more than a mile of underground structure (including the Tysons Central 7 Station). This underground section may be mine-tunneled or excavated using cut and-cover techniques, except at the underground station, which would be constructed with cut-and-cover techniques only. Maintenance of traffic plans for cut-and-cover construction would require significant staging to limit extended lane closures and keep as many lanes open to traffic as possible. Temporary roadways, structures, and detours may be required to direct traffic through this area during construction along Route 7. Construction of the western portal for the underground section would require detouring the service roadway adjacent to Route 7 during construction and realigning the service road after the portal is built.

Construction of feeder bus bays and Kiss & Ride facilities associated with the Tysons Corner area Metrorail stations is expected to have minimal impacts. Construction of Kiss & Ride and bus facilities on the south side of Route 123 at the Tysons East Station may require occasional lane closures on Route 123 and Colshire Drive. At Tysons Central 123 Station, the construction of the bus bays and the bus lane on the north side of Route 123 may require brief closures of some lanes of Route 123 and Tysons Boulevard. Similarly, construction of facilities at the Tysons West Station could require occasional lane closures on Tyco Road. For all stations in Tysons Corner, construction of pedestrian bridges would include some temporary closures of lanes in the vicinity of stations. The construction of the aerial flyover segment across the eastbound lanes of the DIAAH and Dulles Toll Road would also involve limited partial closures of these roadways.

Construction of the Wiehle Avenue Extension between the DIAAH/Route 7 interchange and Wiehle Avenue would require DIAAH realignment at both the Wiehle Avenue Station and its tail track. Realignment activities, as well as construction of pedestrian bridge and station site facilities, would require occasional lane closures along the DIAAH.

## 2.2 PE WIEHLE AVENUE EXTENSION

This section provides a detailed description of the stations, alignment, yard facilities, ancillary facilities, operations and ridership of the PE Wiehle Avenue Extension. Except for the design revisions noted below, the PE Wiehle Avenue Extension is the same as the Final EIS Wiehle Avenue Extension. Figure 2-1 provides an overview of where the design changes occur. All of the figures referenced in this chapter are located at the end of the chapter.

### 2.2.1 PE Wiehle Avenue Extension Alignment

Like the Final EIS Wiehle Avenue Extension, the **PE Wiehle Avenue Extension** would connect to the Orange Line between the East Falls Church and West Falls Church stations. It would continue to the Tysons East Station along the same horizontal alignment as the Final EIS Wiehle Avenue Extension, except that the transition of the alignment from I-66 to the Dulles Connector Road would shift slightly to the east due to a change in the radius of the curve (see Figure 2-2). The vertical alignment would also be similar to the Final EIS Wiehle Avenue Extension, except that the portion of the alignment from its connection with the Orange Line to a point approximately 2,000 feet north would be lowered.

From the Tysons East Station, the PE Wiehle Avenue Extension alignment would proceed west, passing over the Capital Beltway and continuing into the core of Tysons Corner. Along this portion of the aerial alignment, American Association of State Highway and Transportation Officials (AASHTO) concrete box girders would replace the concrete segmental girders proposed in the Final EIS Wiehle Avenue Extension, except where the alignment crosses over the Capital Beltway. Figure 2-3 shows the various types of aerial structure that would be used in the Tysons Corner area.

Like the Final EIS Wiehle Avenue Extension, the PE Wiehle Avenue Extension alignment would transition underground just west of the Tysons Central 123 Station, traveling underground along the north side of Route 123 to the Route 123/Route 7 interchange and turning westward to continue under Route 7. However, under the PE Wiehle Avenue Extension alignment, the horizontal and vertical alignment would be redesigned between Route 123 and the Dulles Toll Road, a distance of approximately one mile. The horizontal alignment would shift approximately 70 feet north, from the service road south of Route 7 to the median of the existing divided roadway. The vertical profile of the tunnel section and the Tysons Central 7 Station would be raised by approximately 45 feet, replacing the underground Tysons Central 7 Station with an at-grade station in the Route 7 median. The portal located between Westpark Drive/Gosnell Road and Spring Hill Road in the Final EIS design would also shift to the median of Route 7 and be relocated approximately 2,300 feet to the east (near the Route 7/Route 123 interchange). As a result of these changes, the tunnel portion of the Route 7 alignment would be shortened in length from roughly 5,300 feet to 3,000 feet and the length of the aerial alignment along Route 7 would be increased. For this portion of the aerial alignment, AASHTO box girders would replace the concrete segmental girders proposed in the Final EIS Wiehle Avenue Extension, except at major intersections (see Figure 2-3). The traction power substation and ventilation building associated with the station would also move from the southern edge of Route 7 to the median. In addition, the underground double crossover that would be located outbound of the Tysons Central 7 Station under the Final EIS Wiehle Avenue Extension would be moved to the section of alignment between Tysons Central 123 station and the outbound portal under the PE alternative. The changes in the alignment and tunnel segment in central Tysons Corner are shown in Figure 2-4.

West of the Tysons Central 7 Station, the PE Wiehle Avenue Extension alignment would transition from an underground to an aerial alignment in the median of Route 7 to provide vehicular clearance at Gosnell Road/Westpark Drive.

Construction of the PE Wiehle Avenue Extension would include roadway modifications to Route 7. Based on a formal request from Fairfax County and coordination with the Virginia Department of Transportation (VDOT), the reconstructed Route 7 would not include the two-way service roads that currently parallel the roadway on its north and south sides. Instead, an additional through/continuous right-hand turn lane would be added to Route 7 in either direction in order to address on-going concerns regarding safety and operational issues associated with the service roads. Figure 2-5 illustrates the proposed change in the configuration of Route 7 under the PE Wiehle Avenue Extension.

The reconstructed Route 7 would also include left-turn lanes in both directions at key intersections that are currently congested during peak periods, providing additional storage capacity in locations where queues typically overflow into adjacent travel lanes. Left turns and U-turns would be limited to these intersections; all intermediate openings in the median would be eliminated. The Westpark Drive/Gosnell Road and Tyco Road/Westwood Center Drive intersections would have two left-turn lanes in both directions, while the Spring Hill Road intersection would include two left-turn lanes in the eastbound direction and one left-turn lane heading westbound. The left-turn lanes at Tyco Road (westbound) and

Spring Hill Road (eastbound) would flank the aerial structure of the Tysons West Station, adding approximately 50 feet to the roadway width in this area.

The PE Wiehle Avenue Extension alignment would continue west from the Tysons West Station in the median of Route 7. Because the alignment would be in the median of Route 7 rather than along the south edge of the roadway, the aerial guideway crossing of the alignment over the exit ramps from the eastbound Dulles Toll Road/DIAAH to eastbound Route 7 would not be required under this alternative.

Like the Final EIS Wiehle Avenue Extension, the PE Wiehle Avenue Extension alignment would continue westward in the median of the DIAAH and would not preclude the possible future construction of a median station at Wolf Trap. However, this portion of the alignment would more closely follow the existing grade of the roadway than that proposed for the Final EIS Wiehle Avenue Extension, reducing the costs for retaining walls and cut and fill. The PE Wiehle Avenue Extension would continue at-grade in the DIAAH median to the Wiehle Avenue Station, where the Dulles Toll Road was previously realigned to accommodate a transit station. The DIAAH would be similarly realigned for the station and its tail tracks.

The PE Wiehle Avenue Extension would end at a point approximately 2,000 feet west of the Wiehle Avenue Station. Like the Final EIS Wiehle Avenue Extension, this section would include tail tracks with a pocket track.

## 2.2.2 PE Wiehle Avenue Extension Stations

The same five stations are included in the PE Wiehle Avenue Extension as in the Final EIS Wiehle Avenue Extension. Changes to each of the five stations occurred in Preliminary Engineering as described below. Figures 2-6 through 2-15 show both the change in profile and station layout in comparison to what was included in the General Plans and Final EIS.

- **Tysons East Station.** The station platform would be shifted 200 feet to the west and the height of the structure supporting the aerial station reduced to prevent the need to place support piers in Scotts Run. At the time the Final EIS was published, detailed engineering had not yet advanced to the point where the exact placement of support piers was established, and it was therefore assumed that this section of alignment would have no impact on Scotts Run. Once it was determined that the Final EIS alignment would require the placement of piers in the stream, the station plans were revised to eliminate these new impacts.

Although the number of bus bays would remain the same, the Kiss & Ride spaces would be reduced by ten from those included in the Final EIS Wiehle Avenue Extension to further decrease the station's impact on Scotts Run. The length of the station canopy covering the Tysons East Station platform would be reduced from 600 feet to approximately 300 feet (a level of coverage typical at most Metrorail stations).

Shifting the station platform to the west would consequently locate the station farther from the south entry building, increasing the length of pedestrian bridge by approximately 50 feet. The width of the pedestrian bridge would be reduced from 23 feet to 12 feet. The bridge structure would be raised fifteen feet to be at the same floor elevation with the mezzanine and would be enclosed with woven wire mesh panels rather than glazing, reducing the weight of the structure and eliminating the need for mechanical ventilation and a sprinkler system. In

addition, the second elevator at the south entry building would be eliminated. The single elevator entrance complies with code and Americans with Disabilities Act (ADA) requirements. In the event of an elevator outage at either entrance, bus service to adjacent entrances would be provided to maintain accessibility for disabled passengers.

- **Tysons Central 123 Station.** The station fare collection facilities would be shifted to ground level below the platform, removing the need for a third level and significantly reducing the overall height of the station and the cost of construction. As a result, the pedestrian bridge would be lowered 20 feet. Transit passenger access from the pedestrian bridge as well as from a pedestrian network of aerial walkways and plazas planned for adjacent developments would be more circuitous, requiring passengers to proceed down to street level in order to enter the station and then go up to reach the aerial platform.

Like the Tysons East Station, the length of the Tysons Central 123 station canopy would be reduced from 600 feet to approximately 300 feet, and the width of the pedestrian bridge would be reduced from 23 feet to 12 feet and enclosed with woven wire mesh panels rather than glazing. The bus bays would be relocated from Route 123 to Tysons Boulevard, where the site gradient is somewhat better suited for ADA-compliance.

The second elevator and escalator at both the north and south entry pavilions of the Tysons Central 123 Station would be eliminated. In the event of an elevator outage at either entrance, bus service to adjacent entrances would be provided to maintain accessibility for disabled passengers.

- **Tysons Central 7 Station.** Like the Route 7 segment of the PE Wiehle Avenue Extension alignment, the Tysons Central 7 Station would shift from the south side of Route 7 to the median. The platform would shift approximately 300 feet east, although the location of the station entry buildings would remain unchanged. Because the station would be partially at-grade and partially above grade rather than underground, a portion of the underground ventilation equipment included in the Final EIS alternative would be eliminated, the underground walkways for pedestrian circulation would be replaced by pedestrian bridges, and a 300-foot station canopy would be added. The station incorporates the tunnel portal in a masonry structure, and masonry walls for much of its length.

Like the other stations in this portion of the alignment, the width of the pedestrian bridge would be 12 feet and enclosed with woven wire mesh panels. The second elevator at both the north and south station entrances of the Tysons Central 7 Station would be eliminated, as would the second escalator at both the north and south station entrances. In the event of an elevator outage at either entrance, bus service to adjacent entrances would be provided to maintain accessibility for disabled passengers.

- **Tysons West Station.** The aerial platform would shift from the south side of the road to the median of Route 7; the north entrance pavilion would be shifted to the south, closer to the station platform; and the bus facilities would be relocated closer to the station. The location of the south entrance pavilion would remain the same as it was under the Final EIS alternative. Due to these changes, the length of the pedestrian bridge connecting the platform to station facilities on the north side of Route 7 would be reduced by about 250 feet, while the south pedestrian bridge would be increased to 85 feet. West of the station platform, the

pocket track included in the Final EIS Wiehle Avenue Extension would be replaced by a double crossover in the same location, allowing track centers to narrow more quickly outbound of the station, reducing guideway costs.

In addition, the bus bays on the north side of Route 7 would be relocated from an interior parcel between Tyco Road and Spring Hill Road to a bus pull-off lane on the north side of Route 7. The bays would be redesigned as a continuous curb-side boarding rather than the sawtooth bays included in the Final EIS alternative, with room for five buses along Route 7. The Kiss & Ride access road would be realigned to minimize impacts to surrounding properties, although the location of the Kiss & Ride lot would remain unchanged.

Like the other stations in this portion of the alignment, the length of the Tysons West station canopy would be reduced from 600 feet to approximately 300 feet, and the width of the pedestrian bridge would be reduced from 23 feet to 12 feet and enclosed with woven wire mesh panels rather than glazing. The second elevator at both the north and south station entrances of the Tysons West Station would also be eliminated. In the event of an elevator outage at either entrance, bus service to adjacent entrances would be provided to maintain accessibility for disabled passengers.

- **Wiehle Avenue Station.** The facilities on the north side of the Dulles Toll Road would be modified somewhat, with orientation of the park-and-ride structure and the bus bays rotated 90 degrees to align north-south, improving circulation. The total number of bus bays (12) and parking spaces (2,300) would remain the same. With the new configuration, the length of the pedestrian bridge is reduced from roughly 525 feet to roughly 275 feet, because it would no longer span the bus bays to reach the park and ride garage. The station platform would also be shifted under the mezzanine, approximately 200 feet to the east.

Like the other stations in this portion of the alignment, the length of the Wiehle Avenue station canopy would be reduced from 600 feet to approximately 300 feet, although the effective coverage of the station platform would be approximately 400 feet, due to the shift of the platform under the mezzanine. The width of the pedestrian bridge would be reduced from 23 feet to 12 feet and enclosed with woven wire mesh panels rather than glazing, and the second elevator at the south station entrance would also be eliminated.

### 2.2.3 PE Wiehle Avenue Extension Yard Facilities

Like the Final EIS Wiehle Avenue Extension, the PE Wiehle Avenue Extension would include a new yard lead into the West Falls Church S&I Yard. The yard lead would connect to the loop track on the north side of the yard, extending eastward and passing under the eastbound travel lanes of the Dulles Connector Road before surfacing in the median of the Connector Road. Here, the lead would be located between the inbound and outbound revenue tracks. In addition, eight storage tracks would be added within the loop track of the existing West Falls Church S&I Yard, and a cover box would be constructed over the yard's existing loop track and a portion of the new yard lead. The storage tracks would have the capacity to store 42 rail cars, with room to maneuver an additional 6 cars, for Metrorail operations in the Dulles Corridor.

However, the PE Wiehle Avenue Extension would not include expansion of the maintenance building, nor would it include the roadway reconstruction, utility relocation, and other improvements associated

with the maintenance building expansion. Instead, maintenance for the PE Wiehle Avenue Extension fleet would be conducted at existing WMATA facilities. These facilities will provide sufficient shop capacity to maintain the Dulles Corridor fleet until the S&I Yard is constructed at the Y-15 site on Dulles Airport property during the project's second phase. A stormwater management facility would also be added at the West Falls Church Yard. Figure 2-16 shows the changes to the plan for the West Falls Church Yard under the PE Wiehle Avenue Extension. Dominion Virginia Power has proposed to construct a new electric transmission substation within the yard site. In addition to providing additional capacity for its customers, this substation would be used to supply electrical power to the Metrorail facilities. The new substation location, which is located on WMATA property, must be approved by Fairfax County and WMATA. Its construction would comply with all applicable regulations.

A portion of the future Y-15 site on Dulles Airport property (approximately 36 acres) would be used for construction staging, precast concrete fabrication, and precast storage for the PE Wiehle Avenue Extension. The site would be used to stockpile soil from the excavation and tunneling activities in Tysons Corner. The excavated soil would be stored for possible later reuse as fill, or possibly to construct a berm along Old Ox Road (Route 606) to screen future yard operations. All soil stored on this site would be placed to avoid any known wetlands and with proper sediment and erosion control. Figure 2-17 depicts the proposed layout of the Y-15 site for these uses. In addition, soil will be placed on this site in coordination with MWAA to ensure soil compatibility with local conditions.

#### **2.2.4 PE Wiehle Avenue Extension Ancillary Facilities**

Like the Final EIS Wiehle Avenue Extension, the PE Wiehle Avenue Extension would include additional ancillary facilities, such as traction power substations, tie-breaker stations, and stormwater management facilities. A new power analysis was conducted to reevaluate the number and size of substations required and the optimal spacing for these stations. This analysis recommended no change in the number, size, or location of these facilities; the PE Wiehle Avenue Extension would include the same 11 traction power substations and the same 4 tie-breaker stations included in the Final EIS Wiehle Avenue Extension.

The PE Wiehle Avenue Extension would require 12 stormwater management facilities, one more than the Final EIS Wiehle Avenue Extension. Two new stormwater management facilities—one at the West Falls Church S&I Yard and one on the south side of the DIAAH near the end of Chatham's Ford Drive—would be added, and the stormwater management facility planned for the north side of the DIAAH west of Hunter Mill Road would be removed. The locations of stormwater management facilities under the Final EIS Wiehle Avenue Extension and the PE Wiehle Avenue Extension are shown in Figure 2-18. No changes in the capacity or size of ponds are anticipated.

Finally, the PE Wiehle Avenue Extension would require two ventilation structures that were not identified as part of the Final EIS Wiehle Avenue Extension. One ventilation structure would be located on top of the outbound portal located just west of the Tysons Central 123 Station (see Figure 2-8). The other ventilation structure would be incorporated within the Tysons Central 7 Station and would be located at the eastern end of the station, with the height of the ventilation structure about the same as the station canopy (see Figure 2-10).

#### **2.2.5 PE Wiehle Avenue Extension Operations**

The operating plans for trains running on the Dulles Line and the existing Orange Line would be the same as for the Final EIS Wiehle Avenue Extension (see Section 2.1.5).

In general, the express and feeder bus service included in the Final EIS Wiehle Avenue Extension would remain unchanged for the PE Wiehle Avenue Extension. However, in the Tysons Corner area, ten feeder bus routes would be re-routed due to the relocation of the bus bays at Tysons West Station. These route changes would be minor, and the total number of feeder bus routes would not change. Service frequencies on the ten routes would remain the same.

For some circulator routes, schedules would be modified to stagger the arrival of buses at Tysons West Station. For the Final EIS, all circulators were scheduled to arrive at Tysons West at the same time. Staggering the bus arrival times would allow both revenue service and layovers to be accommodated with five bus bays.

## **2.2.6 PE Wiehle Avenue Extension Ridership**

The preliminary engineering design refinements would not result in changes to the number of stations for the project or the Metrorail operating plan for service on the Dulles Corridor line. The minor platform shifts for several stations in Tysons Corner would not affect the locations of the entrance pavilions for stations. In addition, the bus re-routings required by the modifications at Tysons West Station would not change bus running times, and proposed headways for each route would be the same. Therefore, the PE Wiehle Avenue Extension would have the same projected ridership as that presented for the Final EIS Wiehle Avenue Extension. Ridership is summarized in Section 2.1.6 of this chapter.

## **2.2.7 PE Wiehle Avenue Extension Construction Activities**

The construction activities for the PE Wiehle Avenue Extension would be generally similar to and include those documented above in Section 2.1.7 for the Final EIS Wiehle Avenue Extension. Construction of the underground section would be reduced from approximately 1.1 miles to slightly more than one-half mile and the Tysons Central 7 Station would now be constructed at-grade.

Based on the construction plan developed for the PE Wiehle Avenue Extension during preliminary engineering, the number of construction staging areas required has increased from eight to ten. Construction staging areas required for the PE Wiehle Avenue Extension include one inside I-66/Dulles Connector Road interchange; one inside the Route 123/Dulles Connector Road interchange; one on the north side of Route 123 at Scotts Crossing Road; one in the median of I-495 north of the I-495/Route 123 interchange; one inside the I-495/Route 123 interchange; one on the north side of Route 123 between Tysons Boulevard and International Drive; two inside the DIAAH/Route 7 interchange; one at the Reston East Park-and-Ride facility west of Wiehle Avenue; and one at S&I Yard Site 15 at Dulles Airport. The locations of these construction staging areas are shown in Figure 2-19.

In addition, more information is now known about temporary easements that would be needed during construction and for placement of utilities. The changes in the predicted construction staging areas and the new information regarding easements are presented in further detail in Chapter 3, Section 3.1 (Displacements and Relocations).

## **2.3 CAPITAL AND OPERATING COSTS**

This section outlines the difference in the estimated capital and operating costs between the Final EIS Wiehle Avenue Extension versus the PE Wiehle Avenue Extension and summarizes the current financial plan for the project. The difference in costs of the two alternatives is due to a combination of factors,



including the design refinements, a better understanding of the planned construction approach, and changes in the cost of materials, labor, and fuel. In addition, the capital cost estimate for the PE Wiehle Avenue Extension includes short-term financing costs required to bridge the gap between the timing of construction and the availability of federal funds.

### **2.3.1 Final EIS Wiehle Avenue Extension Costs**

The estimated total capital costs of the Final EIS Wiehle Avenue Extension are approximately \$1.52 billion in year of expenditure (YOE) dollars. This cost estimate does not include short-term financing costs for the project which were not known at the time the Final EIS was published in December 2004. The incremental annual operating and maintenance costs for the Final EIS Wiehle Avenue Extension in 2011 and 2025 (over the No Build Alternative) are estimated to be \$47.47 million and \$67.64 million (YOE dollars), respectively.

### **2.3.2 PE Wiehle Avenue Extension Costs**

The PE Wiehle Avenue Extension has an estimated capital cost of \$1.84 billion (YOE dollars), which includes short-term financing costs for the project required to bridge the gap between the timing of construction and the availability of federal funds. The current estimate represents a 20 percent increase over the projected cost reported in the Final EIS. This increase is based on several factors, including a more detailed design, a better understanding of the planned construction approach, and changes in right-of-way, materials, labor, and fuel costs. The incremental annual operating and maintenance costs for the PE Wiehle Avenue Extension over the No Build Alternative are the same as reported in the Final EIS: are estimated to be \$47.47 million (YOE dollars) in 2011 and \$67.64 million (YOE dollars) in 2025.

### **2.3.3 Summary of Financial Plan**

DRPT and its funding partners have developed a comprehensive financial plan for the project. Funding sources for both the project's capital and operating plans have been identified and local funding commitments have been made. Over \$200 million in federal funding has been appropriated to date. Administrative or legislative actions necessary to appropriate or program funding for the project have also been completed in the past year. The Project Financial Plan for the PE Wiehle Avenue Extension submitted to FTA in August 2005 as part of its annual News Starts review process is summarized below.

#### **Capital Funding Plan**

The proposed capital funding partners and contribution levels are described below. The current capital funding plan for the project is compared to the Final EIS capital funding plan in Table 2-1.

- Federal Transit Administration – DRPT and its funding partners are seeking \$920 million in Federal funding for the Wiehle Avenue Extension through the FTA Section 5309 New Starts program. This funding level represents 50 percent of the estimated project costs. FTA has not accepted the increased New Starts amount proposed by DRPT. DRPT's request of \$920 million in New Starts funds is significantly higher than what has historically been provided by FTA to other major transit capital investment projects.
- Commonwealth of Virginia – The Commonwealth of Virginia will fund 25 percent of the Wiehle Avenue Extension capital costs, approximately \$460 million (YOE), using Virginia

Transportation Act (VTA) of 2000 funds and Dulles Toll Road revenues. To meet the project's schedule, the Commonwealth plans to use a direct loan of \$145 million from the U.S. Department of Transportation provided under the Transportation Infrastructure Finance and Innovation Act (TIFIA) which will be repaid by Dulles Toll Road revenues.

- Fairfax County – Approximately \$460 million (YOE), representing 25 percent of the capital costs for the Wiehle Avenue Extension, will be provided by Fairfax County. Up to \$400 million of the County's contribution would be provided from debt proceeds backed by revenues from the Dulles Rail Transportation Improvement District. The remainder of the County's contribution will come from one or more alternative funding sources, including cash contributions on a pay-as-you-go basis or alternative forms of debt financing.

**TABLE 2-1: CAPITAL FUNDING PLAN (MILLIONS YOE DOLLARS)**

| <b>Funding Source</b>                           | <b>Final EIS<br/>Wiehle Avenue<br/>Extension</b> | <b>Change<br/>(Final EIS vs. PE)</b> | <b>PE<br/>Wiehle Avenue<br/>Extension</b> |
|-------------------------------------------------|--------------------------------------------------|--------------------------------------|-------------------------------------------|
| <b>Federal (FTA)</b>                            | <b>\$760.7</b>                                   | <b>+159.3</b>                        | <b>\$920.0<sup>1</sup></b>                |
| 5309 New Starts                                 | \$760.7                                          | +159.3                               | \$920.0                                   |
| <b>Commonwealth of Virginia</b>                 | <b>\$380.4</b>                                   | <b>+79.6</b>                         | <b>\$460.0</b>                            |
| Virginia Transportation Act of 2000             | \$75.0                                           | -23.3                                | \$51.7                                    |
| Dulles Toll Road Revenues                       | \$305.4                                          | +102.9                               | \$408.3                                   |
| <b>Fairfax County</b>                           | <b>\$380.4</b>                                   | <b>+79.6</b>                         | <b>\$460.0</b>                            |
| Dulles Rail Transportation Improvement District | \$380.4                                          | +19.6                                | \$400.0                                   |
| Other Revenues                                  | \$0                                              | +60.0                                | \$60.0                                    |
| <b>TOTAL CAPITAL COSTS</b>                      | <b>\$1,521.5</b>                                 | <b>+318.6</b>                        | <b>\$1,840.1</b>                          |

Notes:

- 1 FTA has not accepted the increased New Starts amount proposed by DRPT. DRPT's request of \$920 million in New Starts funds is significantly higher than what has historically been provided by FTA to other major transit capital investment projects.

Anticipated costs for possible short-term financing are included in the current cost estimate for the PE Wiehle Avenue Extension. Additional financing may be required if annual federal appropriations do not match the terms of the project's Full Funding Grant Agreement. If this short-term debt is needed to support and maintain the project's construction schedule, a variety of short-term debt financing instruments are available to the Commonwealth. The terms and repayment schedules would vary depending on the type of debt instrument used.

## Operating Funding Plan

WMATA will be the operator of the Dulles Corridor Metrorail Project. Annual operating subsidies are provided by member jurisdictions of the WMATA Compact. As an extension to the existing Metrorail system, the project would receive incremental operating revenue and subsidies consistent with the Metrorail operating formula developed by the Compact jurisdictions. The additional operating subsidy required from WMATA Compact member jurisdictions would total \$19.95 million (YOE dollars) in 2011 and \$28.17 million (YOE dollars) in 2025.

## 2.4 SUMMARY OF PE DESIGN REFINEMENTS

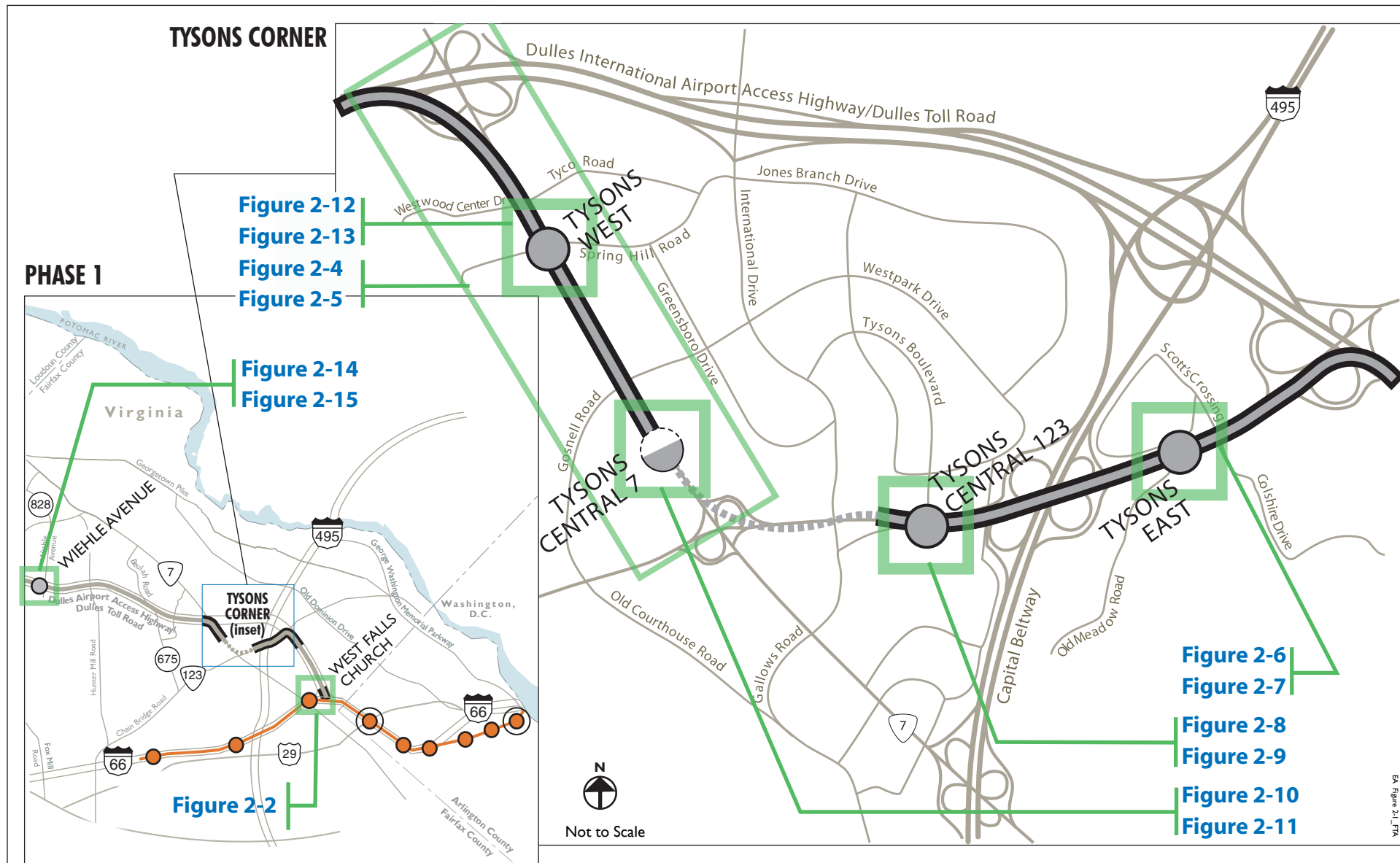
The design refinements incorporated into the PE Wiehle Avenue Extension and being evaluated in this EA are summarized in Table 2-2 below.

**TABLE 2-2: SUMMARY OF PRELIMINARY ENGINEERING DESIGN REFINEMENTS**

| Area             | Design Refinement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Alignment</b> | <ul style="list-style-type: none"> <li>▪ Shift and lower the alignment for the Orange Line connection (see Figure 2-2).</li> <li>▪ Use precast concrete segmental girders and AASHTO box girders for the aerial guideway (see Figure 2-3).</li> <li>▪ Lower the alignment along Route 123 between the Tysons East Station and Tysons Central 123 stations.</li> <li>▪ Shift Route 7 portion of the Tysons Corner alignment and stations (Tysons Central 7 and Tysons West) from the south side (service road) to the median between Route 123 and the Dulles Toll Road (see Figure 2-4).</li> <li>▪ Raise and shorten tunnel segment between Tysons Central 123 and Tysons Central 7 stations. West of Tysons Central 7 station, replace underground alignment section with aerial alignment.</li> <li>▪ Relocate underground double crossover from just west of Tysons Central 7 Station to the section of the alignment between Tysons Central 123 Station and outbound portal.</li> <li>▪ Eliminate service roads along Route 7; reconfigure roadway and replace service roads with additional travel lane in each direction (see Figure 2-5).</li> <li>▪ Replace pocket track near the Tysons West station with double crossover in same location.</li> </ul> |
| <b>Stations</b>  | <ul style="list-style-type: none"> <li>▪ Shift location of aerial station platform and reduce height of support structure (Tysons East—see Figures 2-6 and 2-7).</li> <li>▪ Relocate mezzanine to street-level; decouple pedestrian bridge from mezzanine (Tysons Central 123—see Figures 2-8 and 2-9).</li> <li>▪ Relocate bus bays from Route 123 to Tysons Boulevard (Tysons Central 123—see Figures 2-8 and 2-9).</li> <li>▪ Replace the underground Tysons Central 7 Station on the south side of Route 7 with an at-grade station in the median of Route 7. No changes to station entrance locations (Tysons Central 7—see Figures 2-10 and 2-11).</li> <li>▪ Replace underground pedestrian walkways with pedestrian bridges (Tysons Central 7—see Figures 2-10 and 2-11).</li> <li>▪ Relocate off-street bus bays to north side of Route 7; Kiss &amp; Ride lot location unchanged (Tysons West—see Figures 2-12 and 2-13).</li> <li>▪ Reduce length of pedestrian bridge connection to north side of Route 7, and increase length of pedestrian bridge connection to south side of Route 7 (Tysons West—see Figures 2-12 and 2-13).</li> </ul>                                                                                                           |

**TABLE 2-2: SUMMARY OF PRELIMINARY ENGINEERING DESIGN REFINEMENTS**

| Area                        | Design Refinement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Stations (cont.)</b>     | <ul style="list-style-type: none"> <li>▪ Shift platform under mezzanine (Wiehle Avenue—see Figures 2-14 and 2-15).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Yard and Shop</b>        | <ul style="list-style-type: none"> <li>▪ Eliminate proposed maintenance building expansion at West Falls Church Yard (see Figure 2-16).</li> <li>▪ Use Y-15 yard site on Dulles Airport property for construction staging and soil storage (see Figure 2-17).</li> </ul>                                                                                                                                                                                                                                                                                                               |
| <b>Ancillary Facilities</b> | <ul style="list-style-type: none"> <li>▪ Add two ventilation structures, one at the outbound portal west of the Tysons Central 123 Station, and one at the east end of the Tysons Central 7 Station (see Figures 2-8 and 2-10).</li> <li>▪ Add new stormwater management ponds at West Falls Church Yard and south of DIAAH near Chathams Ford Drive (see Figure 2-18).</li> <li>▪ Remove stormwater management pond on the north side of the DIAAH west of Hunter Mill Road (see Figure 2-18).</li> <li>▪ Add two additional construction staging areas (see Figure 2-19).</li> </ul> |







**Legend**

- Final EIS Alignment
- PE Revised Alignment



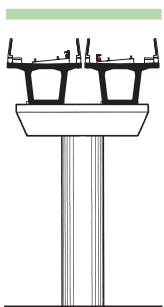
Not to Scale

**Figure 2-2**

**Alignment Change  
from I-66 to Dulles  
Connector Road**

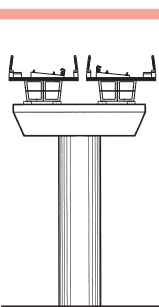


### Segmental Precast Box Girder

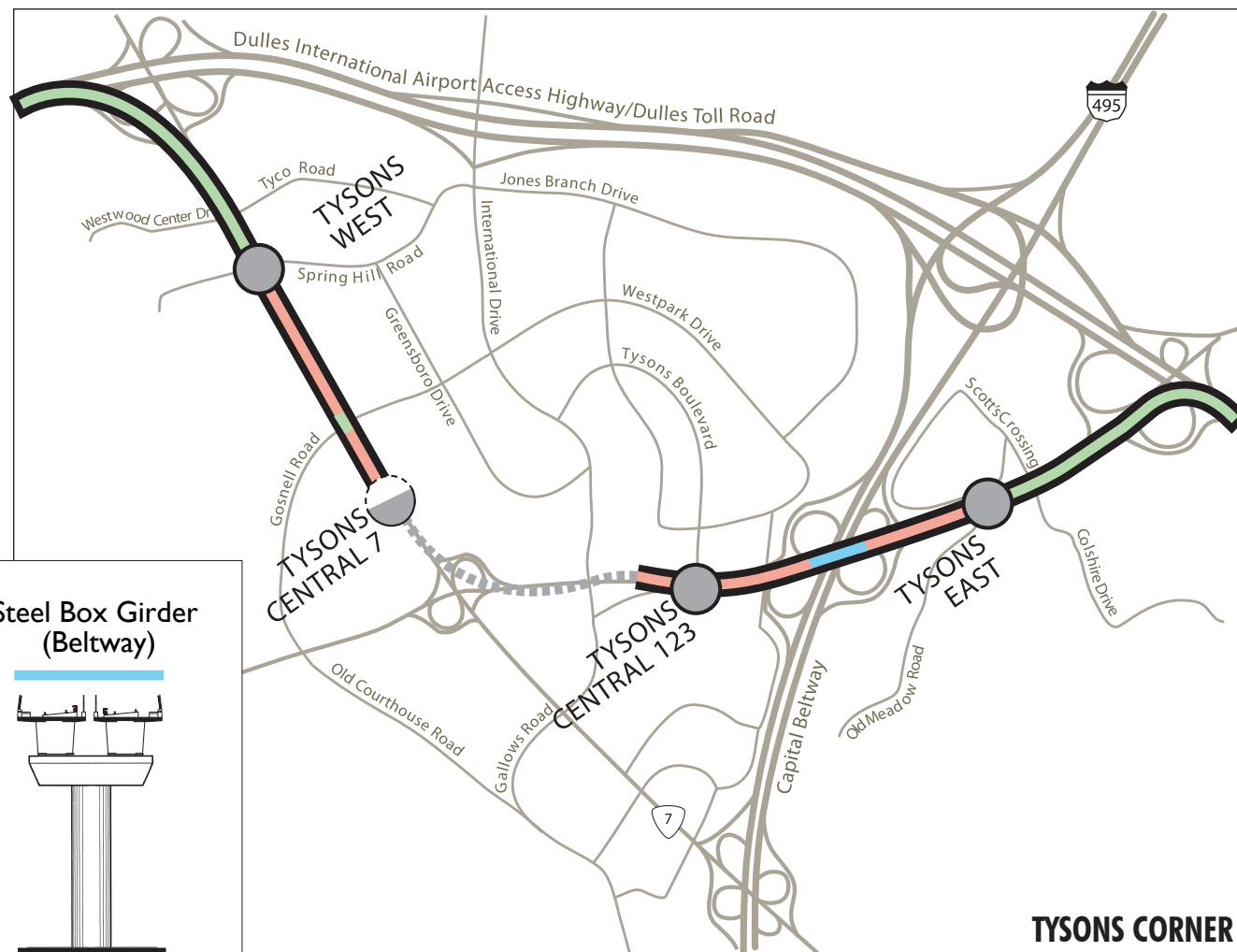
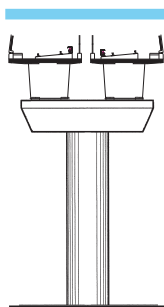


Note: Also Used at  
Spring Hill Road/  
Route 7 Intersection

### AASHTO Box Girder



### Steel Box Girder (Beltway)



### Legend



New Station



Partially Below Surface Station

— Surface Track

— Elevated Track

— Underground Track

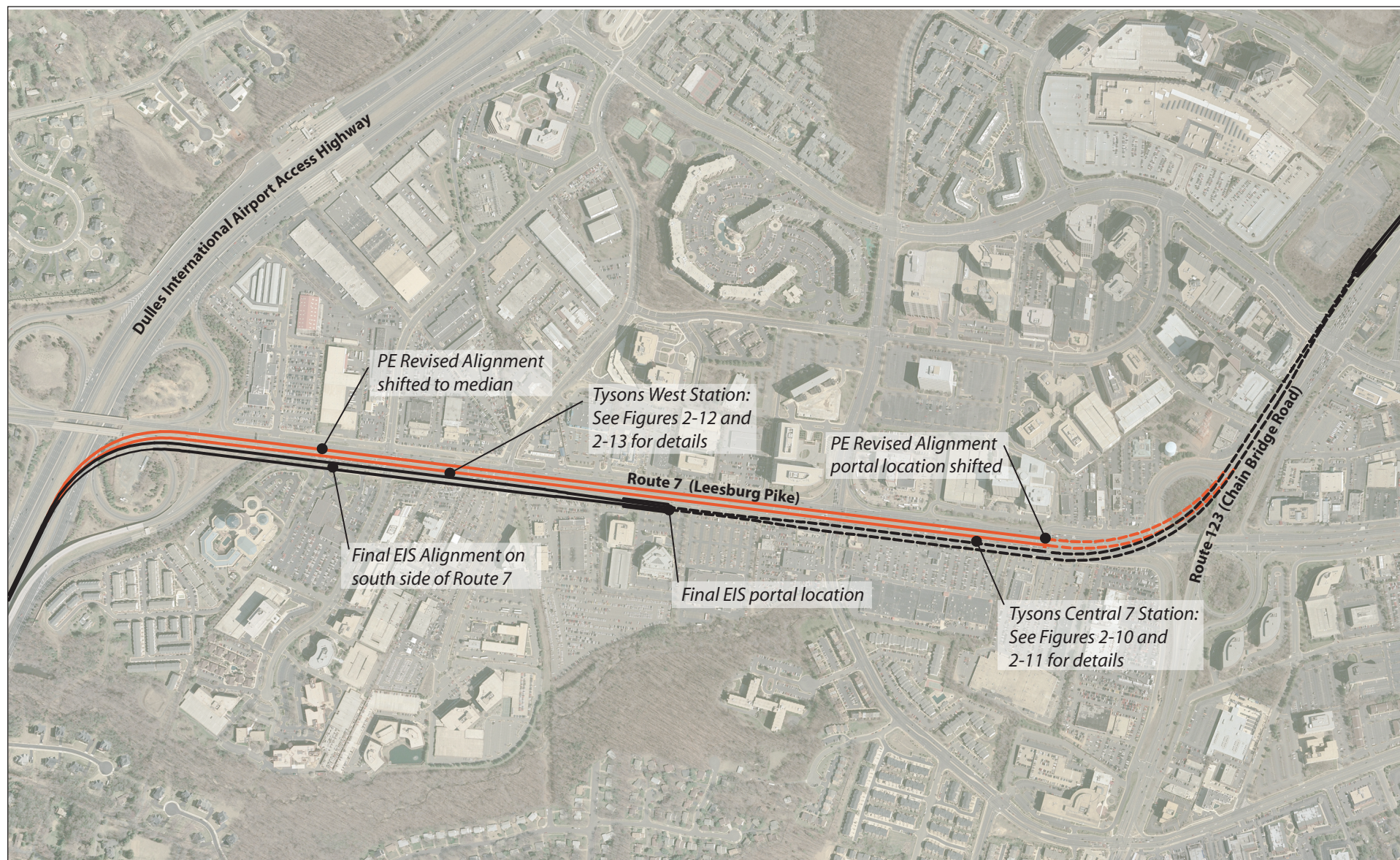


Not to Scale

Figure 2-3

## Aerial Structure Types





#### Legend

-  Final EIS Alignment
-  PE Revised Alignment
-  Alignment in Tunnel



Not to Scale

Figure 2-4

## Alignment Change in Tysons Corner





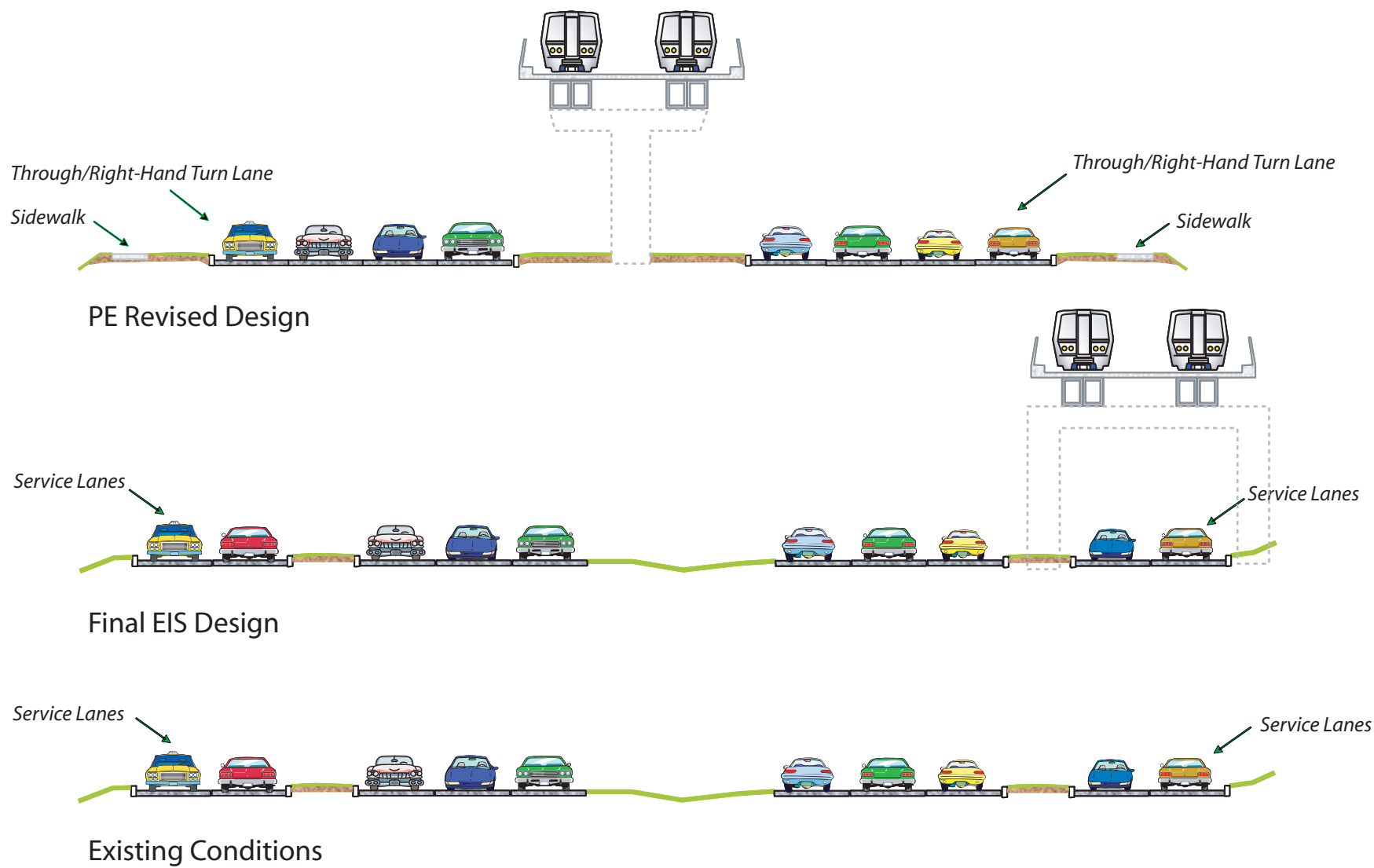


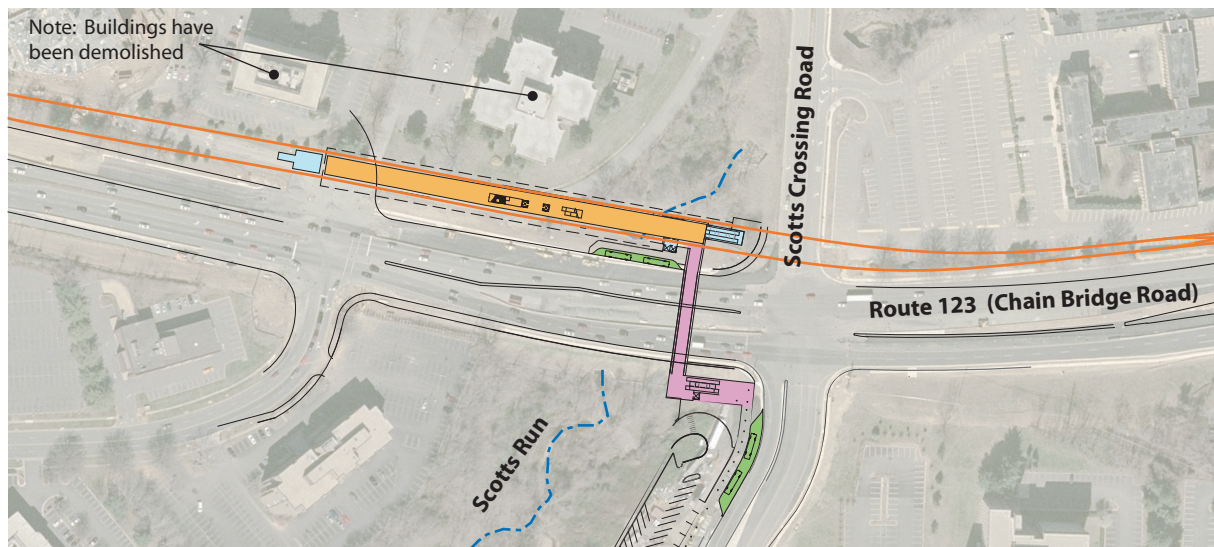
Figure 2-5\_FTA

Not to Scale

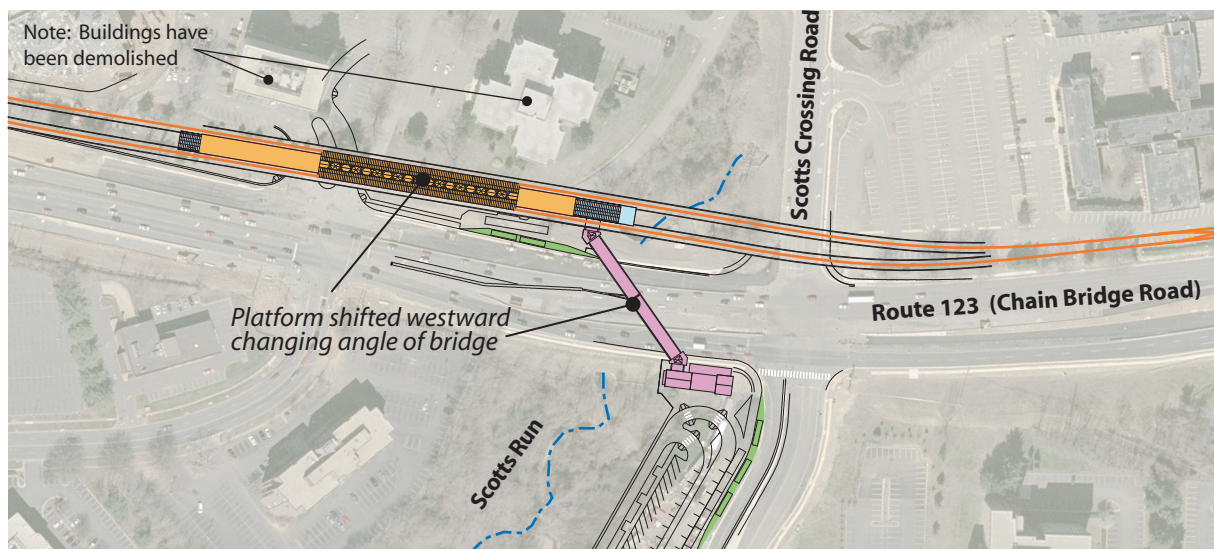
Figure 2-5

## Proposed Cross-Section Changes along Route 7





Final EIS Design



PE Revised Design

Legend

- Entry/Fare Collection
- Platform/Boarding
- Other Ancillary Facilities
- Bus Transfer

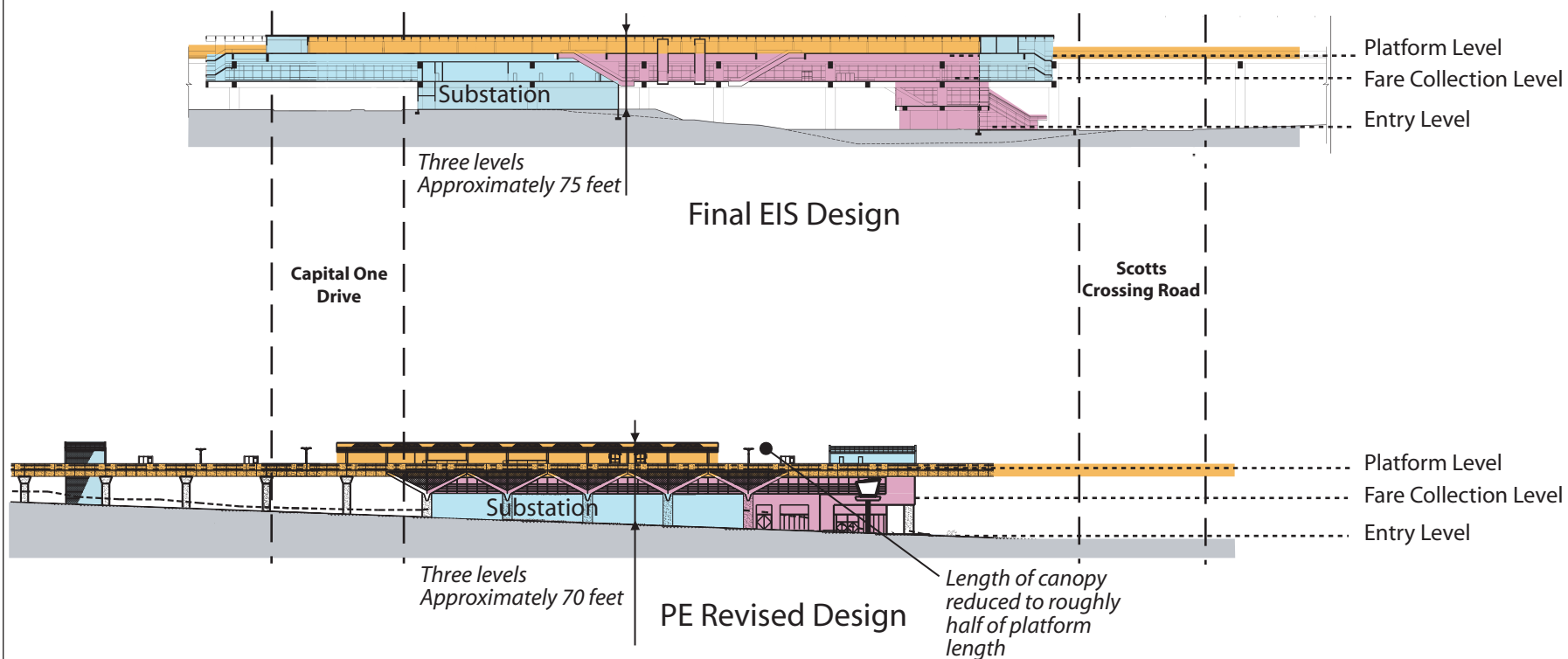


Not to Scale

Figure 2-6

## Tysons East Station Plan Comparison





#### Legend

|                                                                                                                             |                            |
|-----------------------------------------------------------------------------------------------------------------------------|----------------------------|
| <span style="display: inline-block; width: 20px; height: 10px; background-color: #e67e22; border: 1px solid black;"></span> | Entry/Fare Collection      |
| <span style="display: inline-block; width: 20px; height: 10px; background-color: #f1c40f; border: 1px solid black;"></span> | Platform/Boarding          |
| <span style="display: inline-block; width: 20px; height: 10px; background-color: #a6c9ec; border: 1px solid black;"></span> | Other Ancillary Facilities |

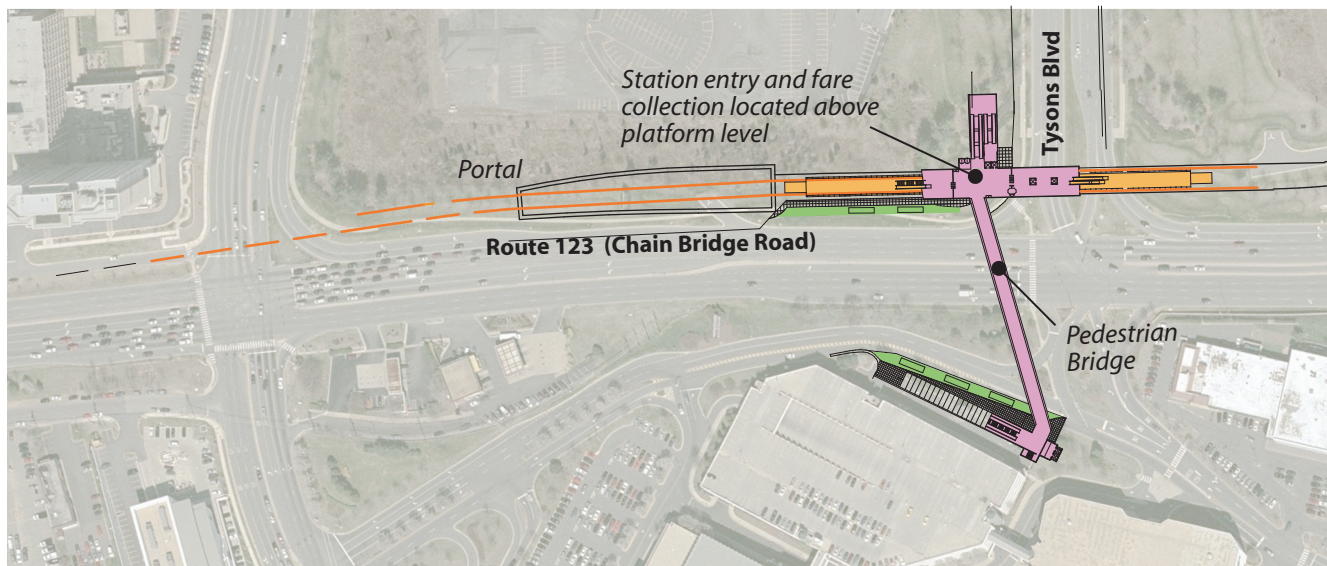
Not to Scale

Figure 2-7

## Tysons East Station Longitudinal Section

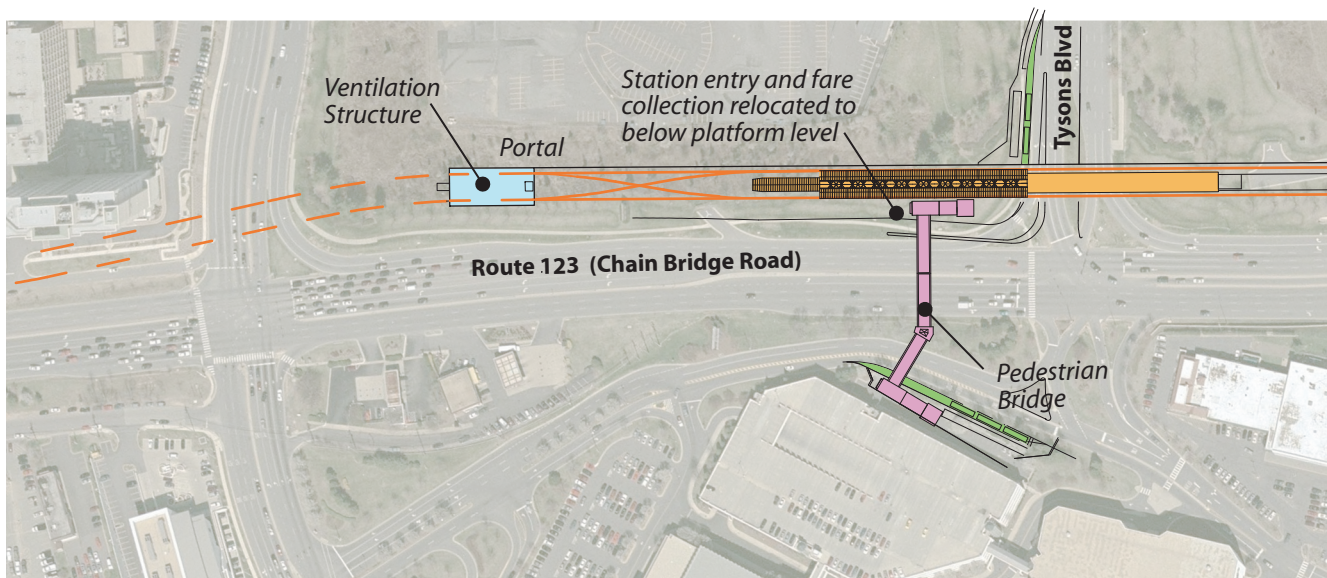






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Final EIS  
Design



PE Revised  
Design

Legend

|                                                                                     |                            |
|-------------------------------------------------------------------------------------|----------------------------|
|  | Entry/Fare Collection      |
|  | Platform/Boarding          |
|  | Other Ancillary Facilities |
|  | Bus Transfer               |



Not to Scale

Figure 2-8

## Tysons Central 123 Station Plan Comparison



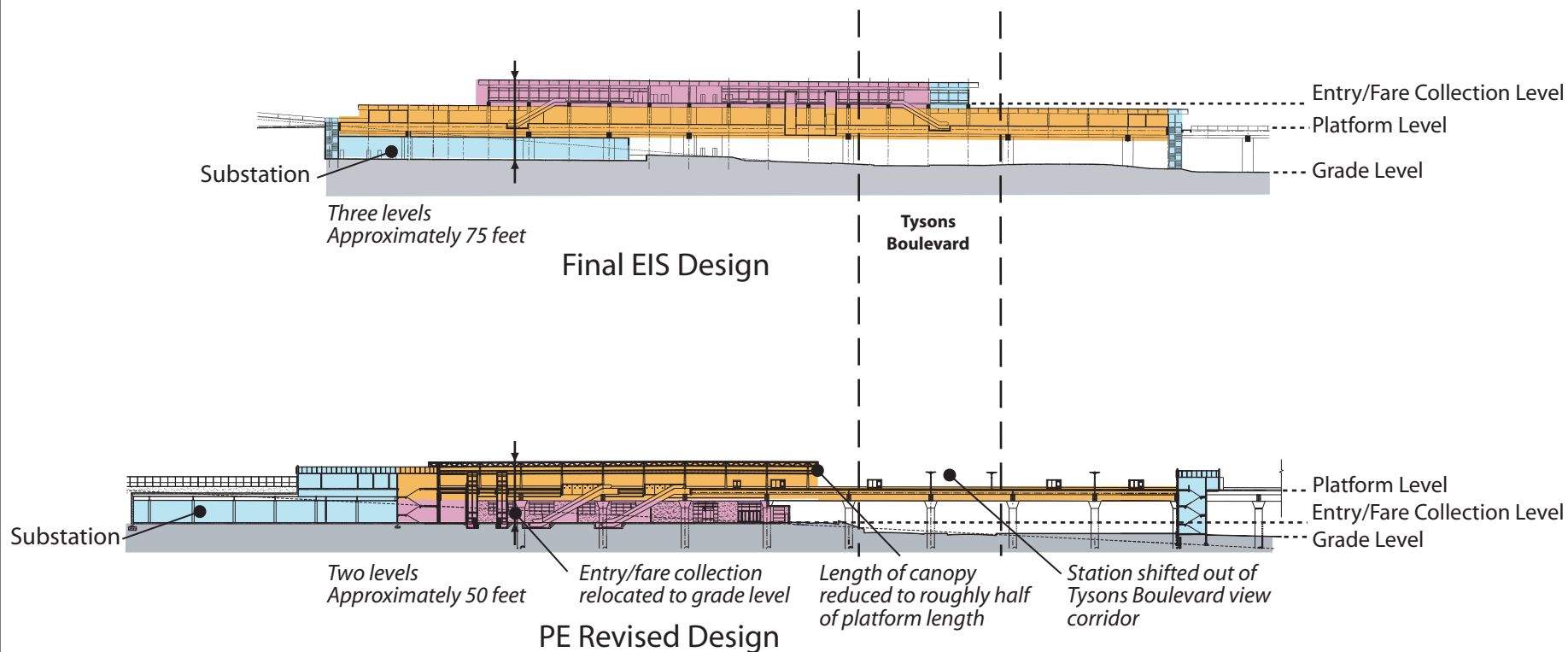
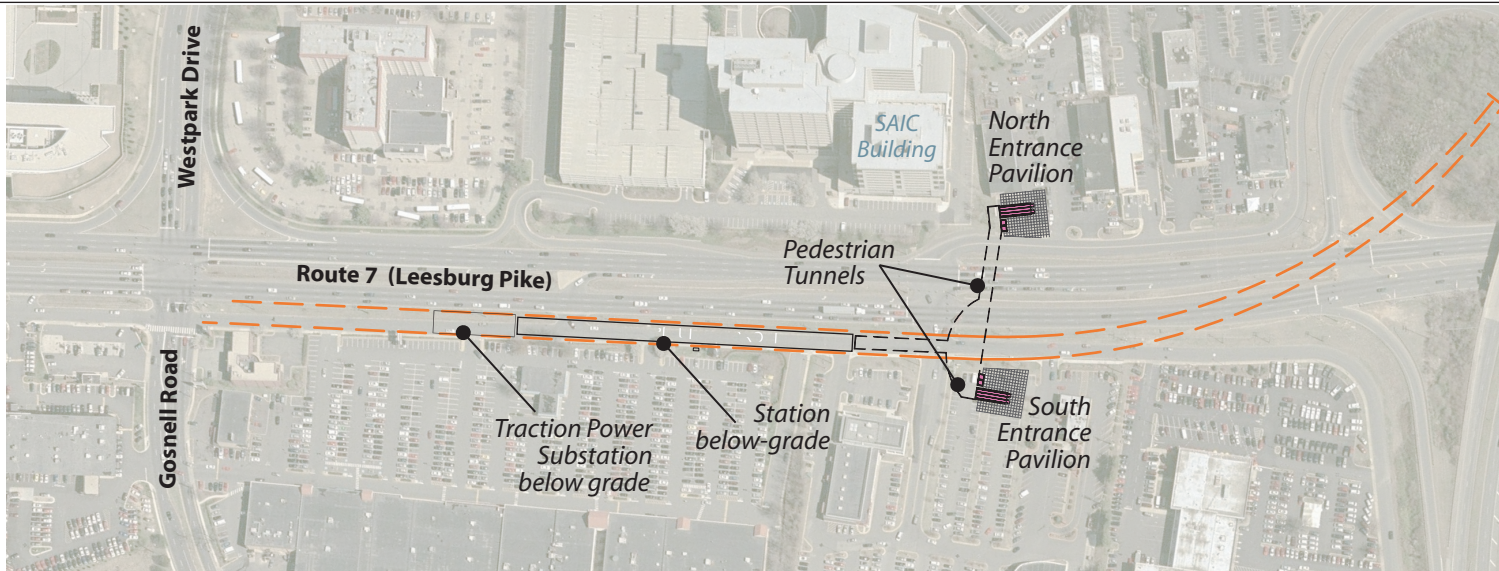


Figure 2-9

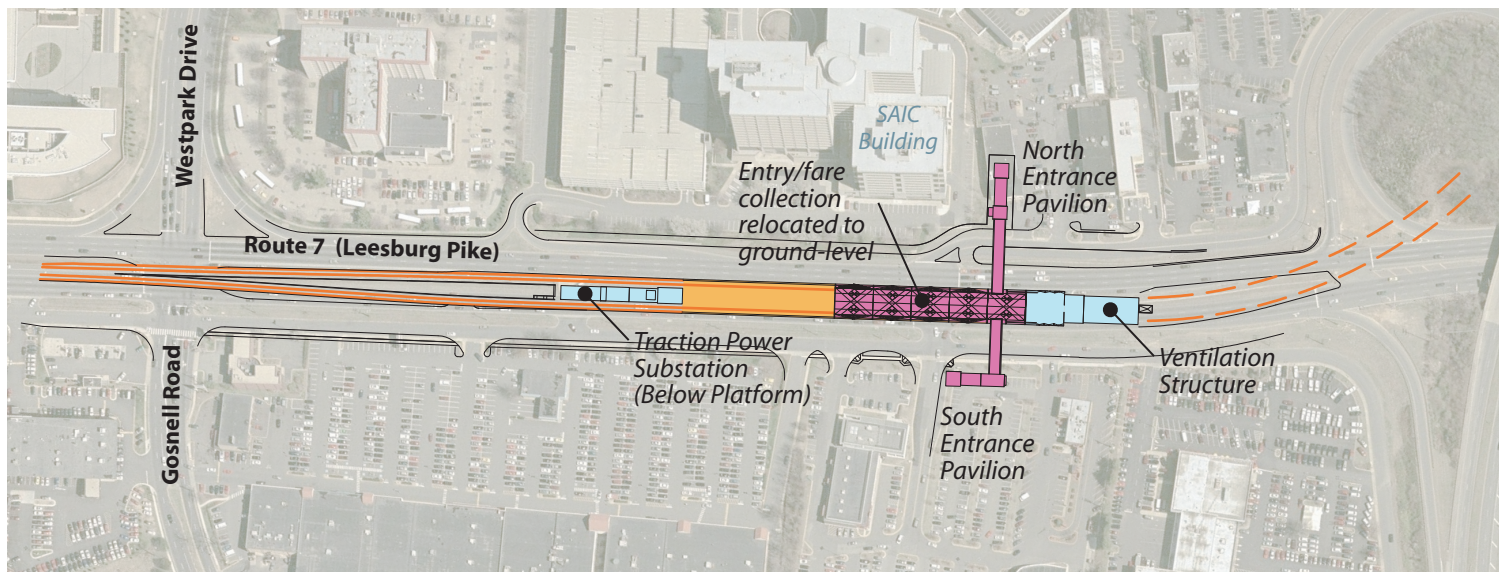
## Tysons Central 123 Station Longitudinal Section





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Final EIS  
Design



PE Revised  
Design

#### Legend

- Entry/Fare Collection
- Platform/Boarding
- Other Ancillary Facilities

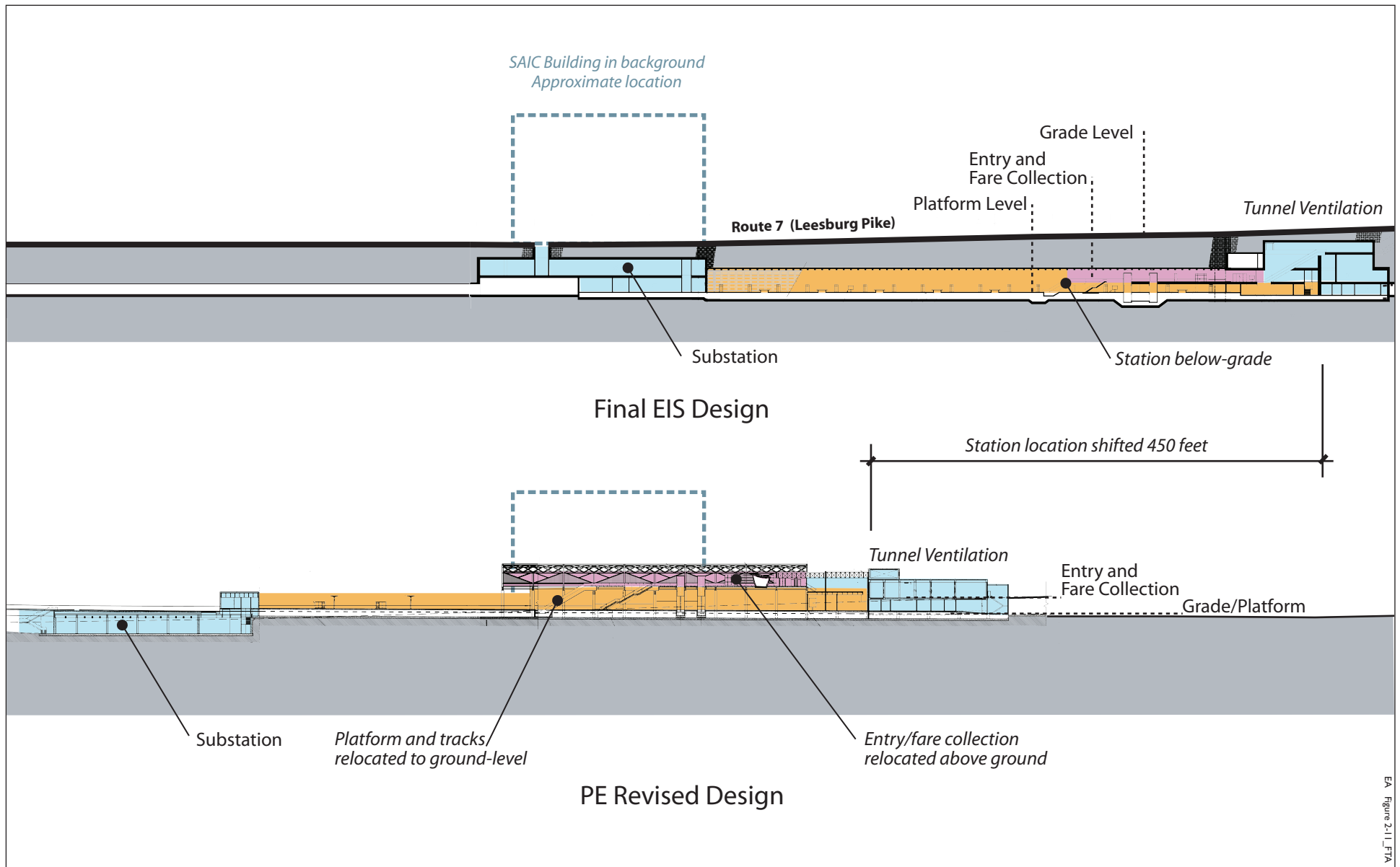


Not to Scale

Figure 2-10

## Tysons Central 7 Station Plan Comparison





EA Figure 2-11 FTA

**Legend**

- Entry/Fare Collection
- Platform/Boarding
- Other Ancillary Facilities

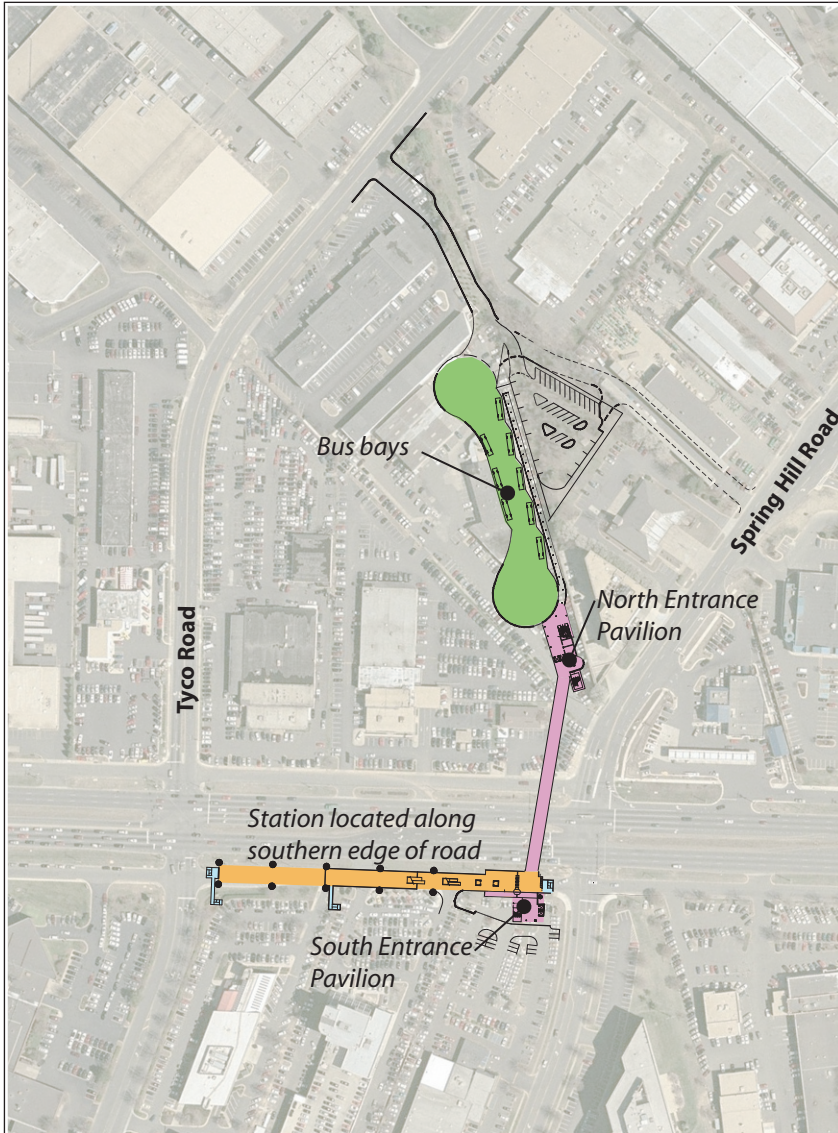
Not to Scale

**Figure 2-11**

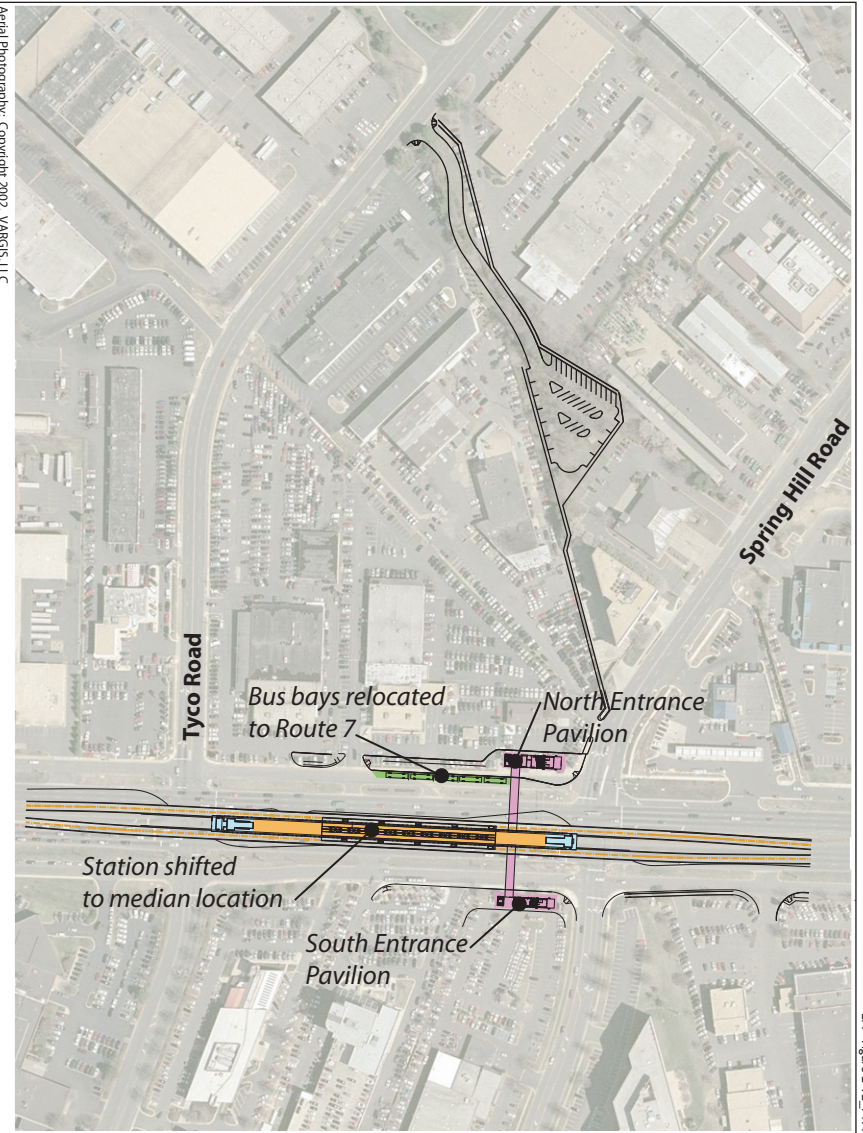
**Tysons Central 7 Station  
Longitudinal Section**







Final EIS Design



PE Revised Design

Legend

|                                                                                     |                            |
|-------------------------------------------------------------------------------------|----------------------------|
|  | Entry/Fare Collection      |
|  | Platform/Boarding          |
|  | Other Ancillary Facilities |
|  | Bus Bays                   |



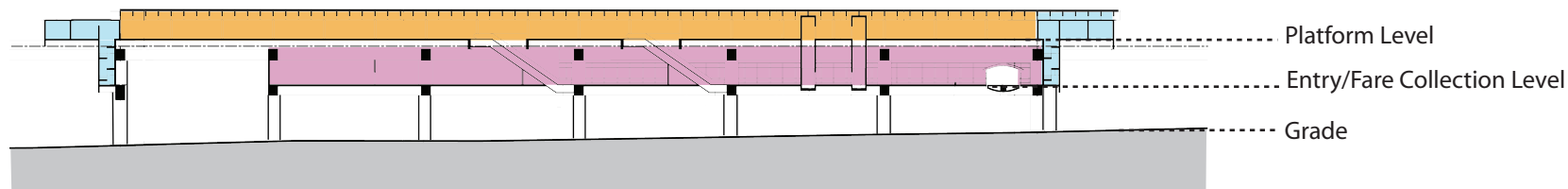
Not to Scale

Figure 2-12

## Tysons West Station Plan Comparison

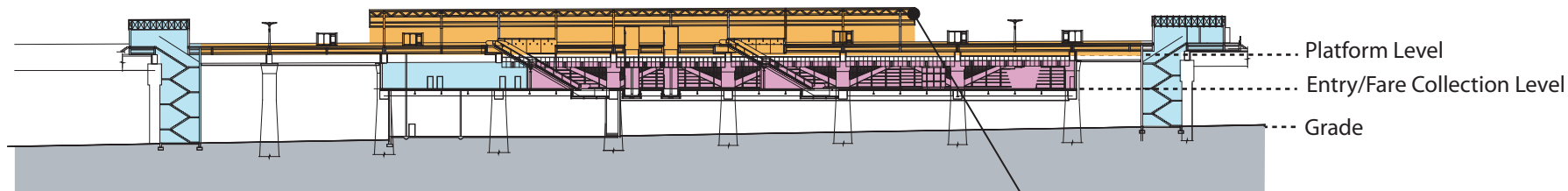






Three levels  
Approximately 70 feet in height

Final EIS Design



Three levels  
Approximately 65 feet in height

PE Revised Design

Length of canopy  
reduced to roughly  
half of platform  
length

Legend

|                                                                                     |                            |
|-------------------------------------------------------------------------------------|----------------------------|
|  | Entry/Fare Collection      |
|  | Platform/Boarding          |
|  | Other Ancillary Facilities |

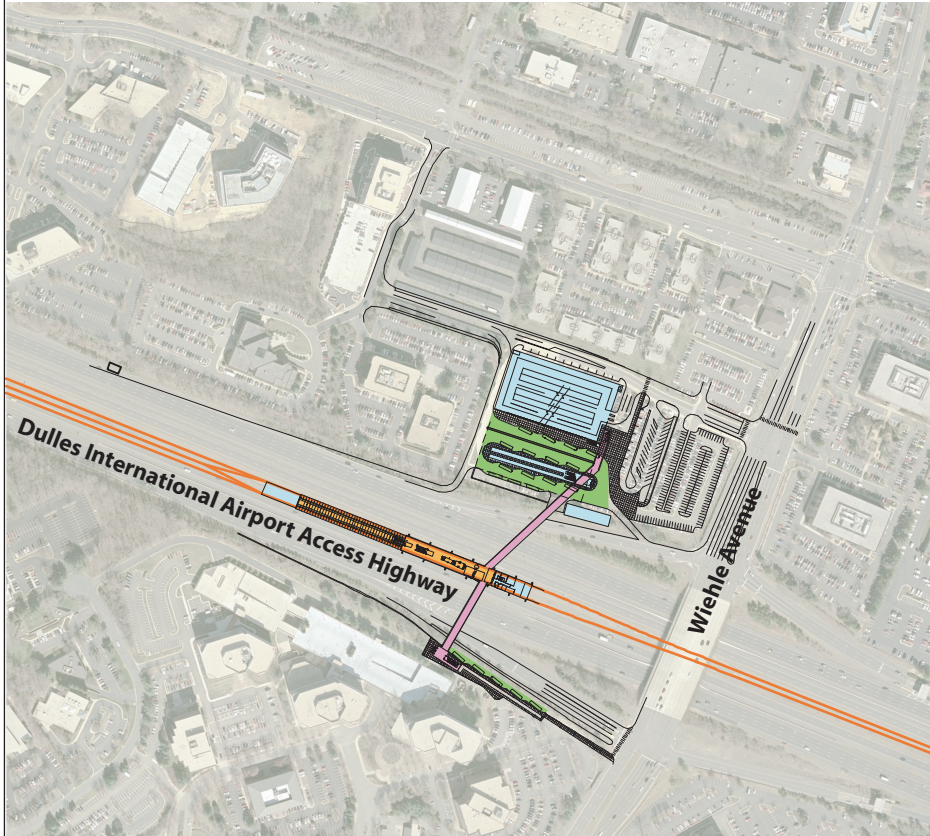
Not to Scale

Figure 2-13

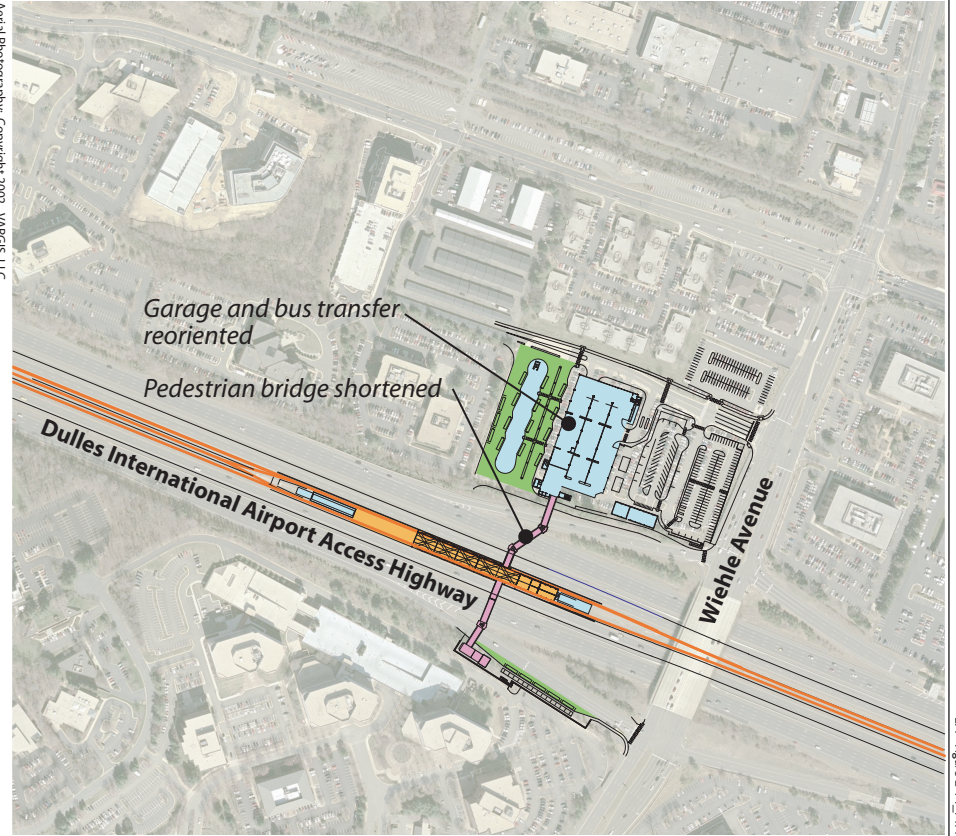
## Tysons West Station Longitudinal Section



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Herndon, VA. All rights reserved.



Final EIS Design



PE Revised Design

EA Figure 2-14, FTA

Legend



- Entry/Fare Collection
- Platform/Boarding
- Other Ancillary Facilities
- Bus Transfer



Not to Scale

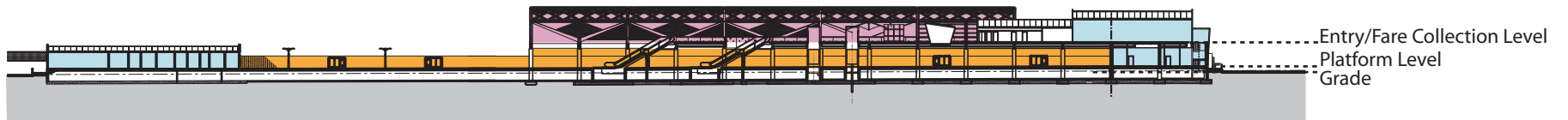
Figure 2-14

## Wiehle Avenue Station Plan Comparison





Final EIS Design



PE Revised Design

Legend

|                                                                                     |                            |
|-------------------------------------------------------------------------------------|----------------------------|
|  | Entry/Fare Collection      |
|  | Platform/Boarding          |
|  | Other Ancillary Facilities |

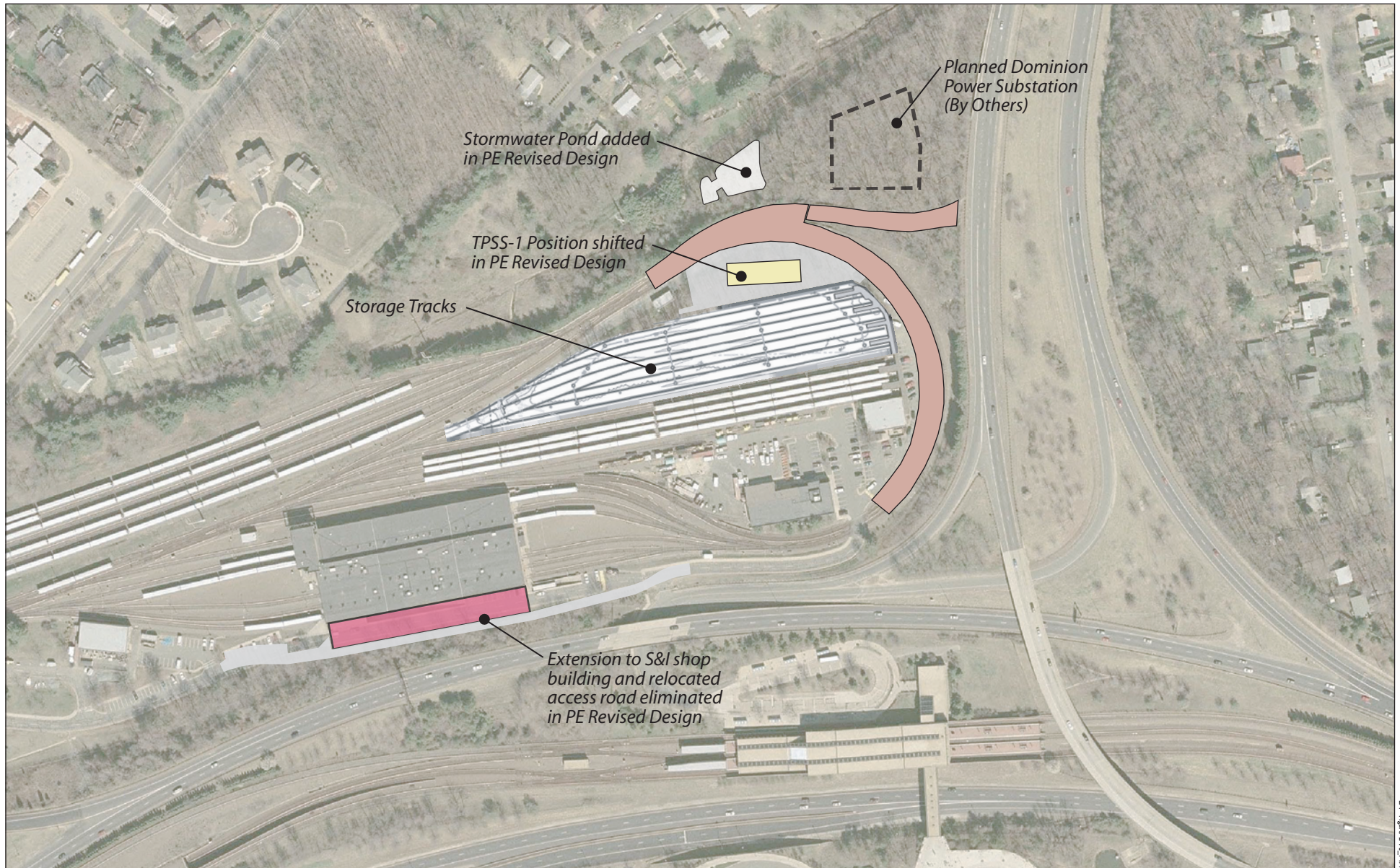
Not to Scale

Figure 2-15

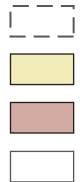
## Wiehle Avenue Station Longitudinal Section







Legend

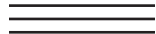


Dominion Power Substation

TPSS-1

Sound Cover Box

Stormwater Pond



Storage Tracks



S&I Shop Extension



Paved Areas



Not to Scale

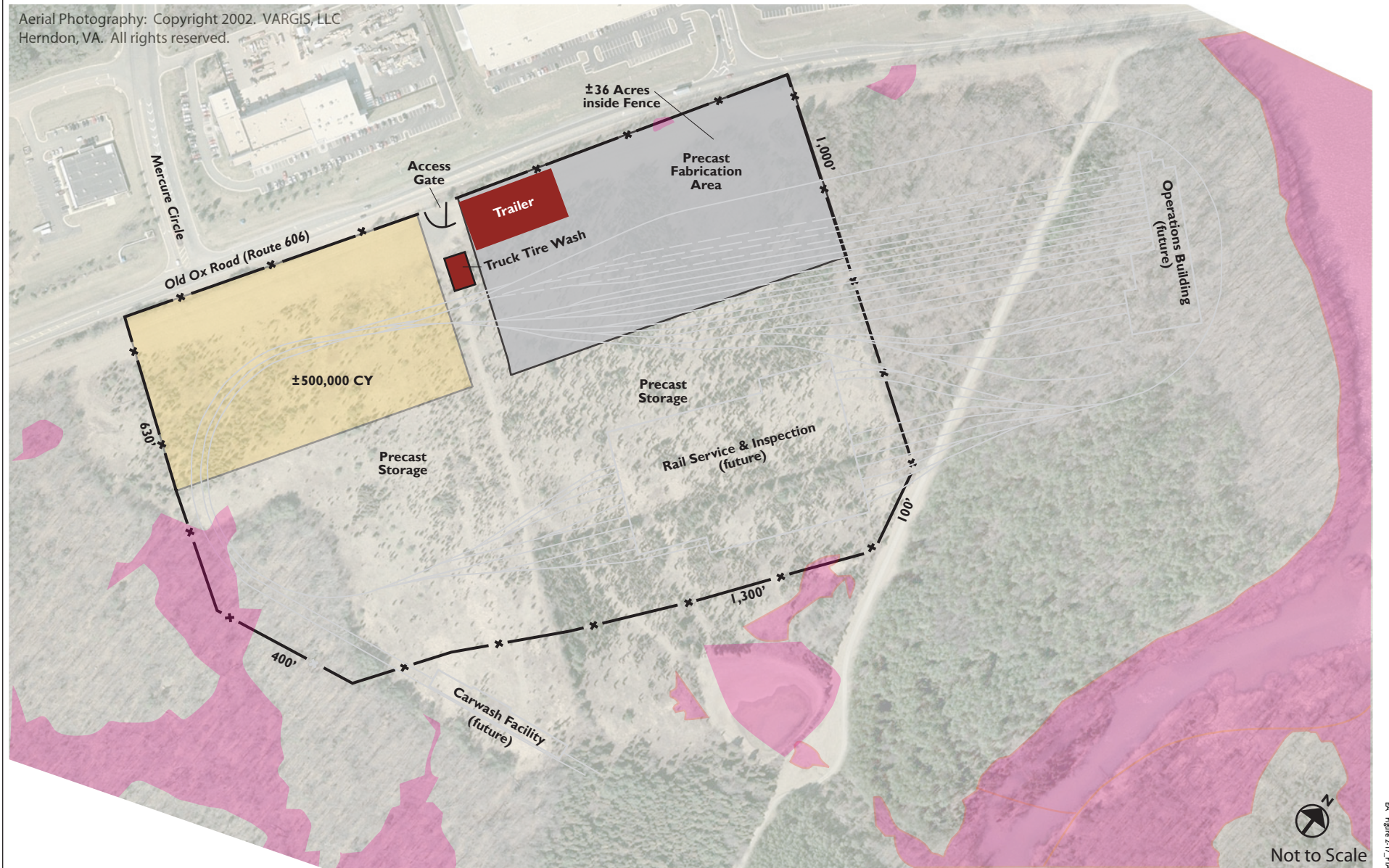
Figure 2-16

## Changes to West Falls Church Rail Yard





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#### Legend

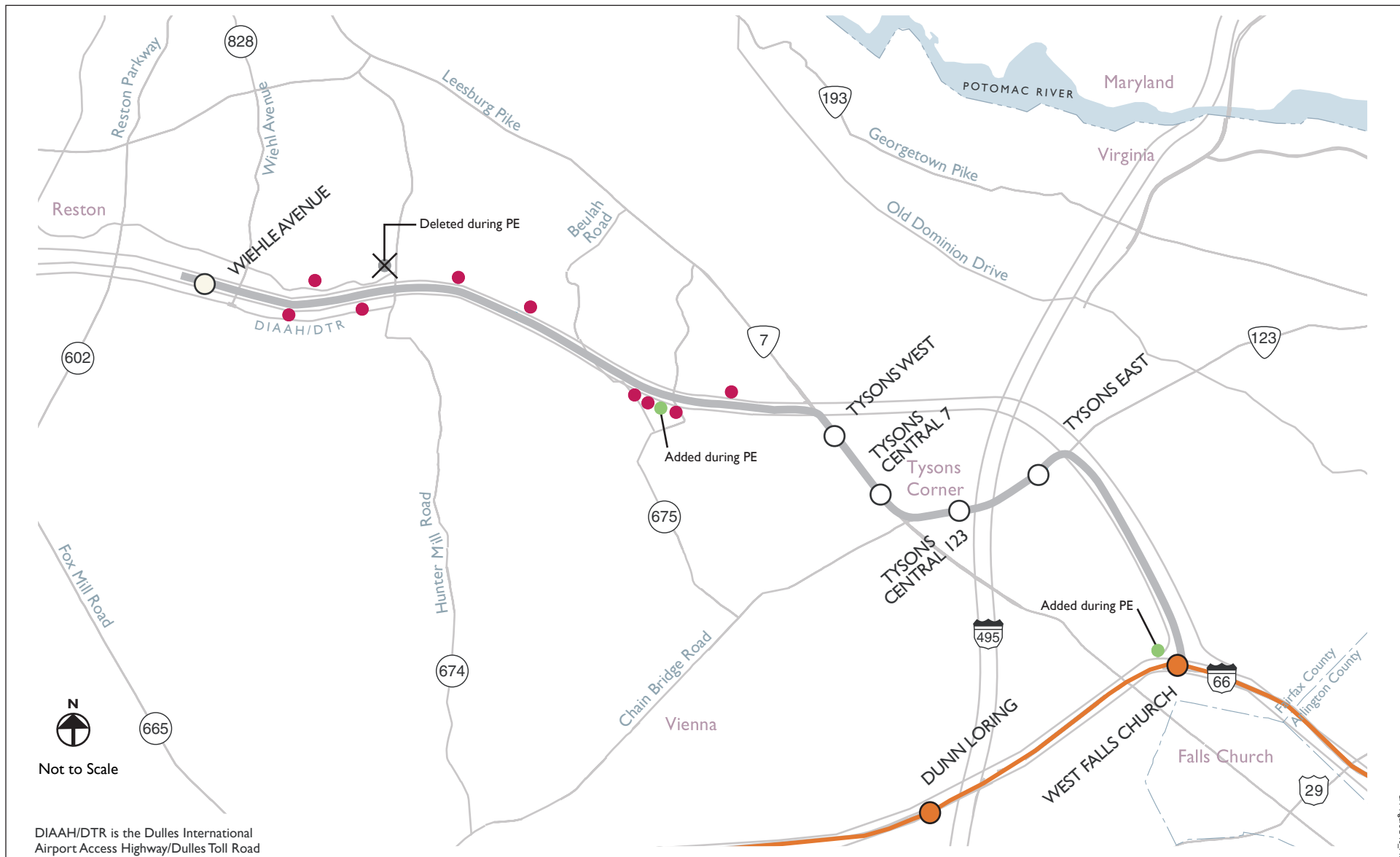
- \* — Perimeter fence
- Temporary structure
- Soil stockpile area
- Precast plant (concrete from offsite)
- Future Yard & Shop facilities
- Wetlands delineated by MWAA



Figure 2-17

## Y-15 Yard Site: Proposed Phase I Construction Use





EA Figure 2-18 JTA

#### Legend

- |  |                                        |  |                                         |
|--|----------------------------------------|--|-----------------------------------------|
|  | New Station                            |  | Final EIS Stormwater Facilities         |
|  | Existing Orange Line Track and Station |  | Stormwater Facilities Deleted during PE |
|  | Alignment                              |  | Stormwater Facilities Added during PE   |

Figure 2-18

## Proposed Stormwater Management Facilities





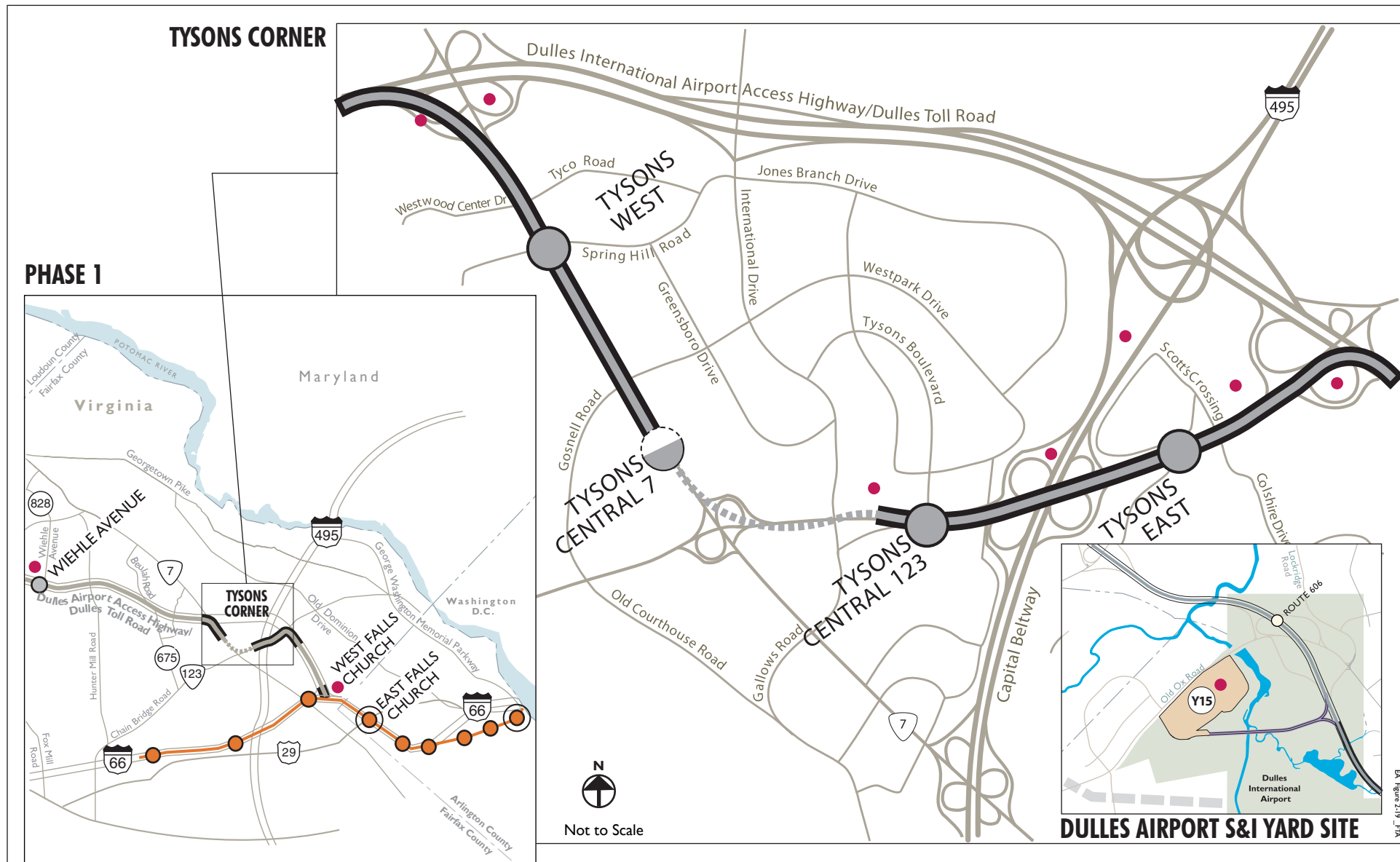


Figure 2-19

## Potential Construction Staging Areas

# 3 ENVIRONMENTAL EFFECTS

This chapter documents the environmental effects from the preliminary engineering (PE) design refinements and presents those effects in comparison to the impacts and mitigation documented in the Final Environmental Impact Statement (EIS) and Record of Decision (ROD). Only those resources that would experience a change in effects are included.

Table 3-1 provides a summary of the difference in environmental effects between the Final EIS Wiehle Avenue Extension and the project's current design, the PE Wiehle Avenue Extension. Unless noted below, the effects of both alternatives are the same as those reported in the December 2004 Final EIS. A complete comparison of environmental effects between the Final EIS Wiehle Avenue Extension and the PE Wiehle Avenue Extension is provided in Appendix C.

**TABLE 3-1: SUMMARY OF CHANGES IN ENVIRONMENTAL EFFECTS**

| Measure                                                   | Final EIS Wiehle Avenue Extension | Changes in Effects (Final EIS vs. PE)                           | PE Wiehle Avenue Extension |
|-----------------------------------------------------------|-----------------------------------|-----------------------------------------------------------------|----------------------------|
| <b>SOCIAL EFFECTS</b>                                     |                                   |                                                                 |                            |
| <b>Property Acquisitions</b>                              |                                   |                                                                 |                            |
| Private Residential Properties Acquired (No. parcels)     | 11                                | - 2                                                             | 9                          |
| Private Commercial Properties Acquired (No. parcels)      | 37                                | + 3                                                             | 40                         |
| Government Properties Acquired (No. parcels) <sup>1</sup> | 14                                | + 2                                                             | 16                         |
| <b>Displacements</b>                                      |                                   |                                                                 |                            |
| Residential Displacements (No.)                           | 0                                 | No change                                                       | 0                          |
| Business Displacements Due to Project Facilities (No.)    | 3                                 | - 2                                                             | 1                          |
| Business Displacements Due to Construction Activity (No.) | n.d. <sup>2</sup>                 | +6                                                              | 6                          |
| <b>Visual and Aesthetic Conditions</b>                    |                                   |                                                                 |                            |
| Tysons Corner Stations                                    | Minimal effect                    | Modest increase at Tysons Central 7; Modest reduction at others | Minimal effect             |
| Alignments in medians of Dulles Connector Road and DIAAH  | Minimal effect                    | Modest reduction along Connector Road                           | Minimal effect             |
| Alignments along Route 7 and Route 123                    | Minimal effect                    | Modest increase along Route 7                                   | Minimal effect             |
| Portals on Route 123 and Route 7                          | Minimal effect                    | Modest increase                                                 | Minimal effect             |

TABLE 3-1: SUMMARY OF CHANGES IN ENVIRONMENTAL EFFECTS

| Measure                                                                  | Final EIS Wiehle Avenue Extension                                                                      | Changes in Effects (Final EIS vs. PE)                     | PE Wiehle Avenue Extension                                                                             |
|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Wiehle Avenue Station                                                    | Minimal effect                                                                                         | Modest reduction                                          | Minimal effect                                                                                         |
| West Falls Church Storage & Inspection Yard improvements including leads | Negligible effect                                                                                      | Modest reduction                                          | Negligible effect                                                                                      |
| <b>ENVIRONMENTAL EFFECTS</b>                                             |                                                                                                        |                                                           |                                                                                                        |
| <b>Air Quality</b>                                                       |                                                                                                        |                                                           |                                                                                                        |
| Conformity with SIP                                                      | Yes                                                                                                    | No change                                                 | Yes                                                                                                    |
| Contribution to Regional Goals                                           | Partially. Plans assume high-capacity transit improvements for full length of Dulles Corridor          | No change                                                 | Partially. Plans assume high-capacity transit improvements for full length of Dulles Corridor          |
| Reduced Vehicle Emissions vs. Existing Levels                            | Yes                                                                                                    | Modest emissions increases at intersections along Route 7 | Yes                                                                                                    |
| NAAQS Violations                                                         | None                                                                                                   | No change                                                 | None                                                                                                   |
| <b>Noise and Vibration<sup>3</sup></b>                                   |                                                                                                        |                                                           |                                                                                                        |
| Noise Receptors Above FTA Criteria Before Mitigation                     | 184                                                                                                    | No change                                                 | 184                                                                                                    |
| Noise Receptors Above WMATA Criteria Before Mitigation                   | 48                                                                                                     | No change                                                 | 48                                                                                                     |
| Vibration Receptors Above FTA Criteria Before Mitigation                 | 7                                                                                                      | – 1 receptor                                              | 6                                                                                                      |
| Groundborne Noise Receptors Above FTA Criteria                           | 15                                                                                                     | – 1 receptor                                              | 14                                                                                                     |
| Vibration Receptors Above WMATA Criteria Before Mitigation               | 15                                                                                                     | – 1 receptor                                              | 14                                                                                                     |
| <b>Water Resources</b>                                                   |                                                                                                        |                                                           |                                                                                                        |
| Streams                                                                  | 7 streams crossed<br>Minimal effects                                                                   | Less proximity effects at Pimmit Run                      | 7 streams crossed<br>Minimal effects                                                                   |
| Water Quality                                                            | Minimal effects                                                                                        | Less water quality effects at Pimmit Run and Scotts Run   | Minimal effects                                                                                        |
| 100-Year Floodplain                                                      | Bridge piers placed in 100-year floodplain for 3 streams<br>No change in surface elevation anticipated | No change                                                 | Bridge piers placed in 100-year floodplain for 3 streams<br>No change in surface elevation anticipated |
| Chesapeake Bay Preservation Areas                                        | Minimal effects                                                                                        | Less effect at Scotts Run                                 | Minimal effects                                                                                        |
| Wetlands Impacts (Acres)                                                 | 0                                                                                                      | No change                                                 | 0                                                                                                      |

TABLE 3-1: SUMMARY OF CHANGES IN ENVIRONMENTAL EFFECTS

| Measure                                      | Final EIS Wiehle Avenue Extension                                                                               | Changes in Effects (Final EIS vs. PE)                                                                                         | PE Wiehle Avenue Extension                                                                                                                                               |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>TRANSPORTATION EFFECTS</b>                |                                                                                                                 |                                                                                                                               |                                                                                                                                                                          |
| <b>Roadways</b>                              |                                                                                                                 |                                                                                                                               |                                                                                                                                                                          |
| Regional Highway Operations                  | Minimal effect on traffic volumes                                                                               | No change                                                                                                                     | Minimal effect on traffic volumes                                                                                                                                        |
| Local Roadway Operations                     | Increased traffic in vicinity of stations with Parking or Kiss & Ride areas                                     | Reduced delay in vicinity of Tysons West Station                                                                              | Increased traffic in vicinity of stations with Parking or Kiss & Ride areas                                                                                              |
| Number of Intersections Requiring Mitigation | 4                                                                                                               | No change                                                                                                                     | 4                                                                                                                                                                        |
| <b>Transit Service and Operations</b>        |                                                                                                                 |                                                                                                                               |                                                                                                                                                                          |
| Proposed Tysons Corner Bus Operations        | New feeder service proposed to serve Metrorail stations and Tysons Corner area                                  | None. Routing and arrival time changes would not affect operating costs or ridership                                          | New feeder service proposed to serve Metrorail stations and Tysons Corner area; some re-routing of feeder buses near Tysons West Station and staggering of arrival times |
| Station Access                               | Two elevators provided at each station entrance; maintains accessibility in the event of an elevator outage     | Modest reduction in accessibility for most passengers; considerable reduction in accessibility for disabled passengers        | Second elevator at station entrance buildings eliminated; requires the provision of bus service to adjacent entrances in the event of an elevator outage                 |
| Maintenance Facilities                       | Maintenance building expansion at West Falls Church S&I Yard; Dulles fleet maintained at West Falls Church Yard | None. Existing WMATA facilities will have sufficient capacity to maintain Dulles fleet until second phase of project complete | Eliminate maintenance building expansion at West Falls Church S&I Yard; Dulles fleet to be maintained at existing WMATA facilities                                       |

Notes:

- 1 Government Properties include approved proffers to be conveyed to a governmental entity.
- 2 Not documented in Final EIS.
- 3 Planned mitigation measures will reduce impacts below FTA criteria.

### 3.1 DISPLACEMENTS AND RELOCATION

This section presents the changes in the number and type of property acquisitions and displacements that would result from the PE Wiehle Avenue Extension as compared to the Final EIS Wiehle Avenue Extension. A discussion of the statutes and regulations affecting displacements and the analysis methodology for identifying acquisitions and displacements is provided in Section 3.3 of the Final EIS. This information has not changed.

During the preparation of the Final EIS, the limits of disturbance for the Final EIS Wiehle Avenue Extension were overlaid onto corridor parcel maps to identify potential acquisitions and displacements that would occur from implementing the project. Each of the parcels was then analyzed to determine if an acquisition was necessary, and if the acquisition would displace a residence, business, community facility, or institutional use. Land proffered for transit facilities by private landowners and land required from public agencies (Fairfax and Loudoun counties, Virginia Department of Transportation (VDOT), Metropolitan Washington Airports Authority (MWAA)) was not analyzed for displacements in the Final EIS. This analysis was repeated during preliminary engineering for the PE Wiehle Avenue Extension.

In addition to those changes in effects related to design refinements, new information on the right-of-way impacts of the Wiehle Avenue Extension is now available based on construction planning completed during preliminary engineering. Right-of-way impacts reported in the Final EIS were characterized as permanent surface, underground, or aerial easements because the full details of planned construction activities had not yet been developed. However, it is now possible to differentiate between impacts due to permanent project facilities and those related to temporary, construction period activities.

Unlike the Final EIS analysis, the right-of-way acquisition plan currently being developed as part of the preliminary engineering process also identifies whether a property interest is to be acquired in fee or as an easement. An easement is a right-of-use agreement between a property owner and another party granting use of that property for a specific purpose, such as access to another parcel or for utility lines. This arrangement is different from fee acquisitions in which the property owner conveys title for the land and no longer has rights for its use. In general, fee acquisitions are made where project facilities are to be constructed, operated, and maintained. Permanent easements are used where the property owner desires to retain control of the property for uses not in conflict or that are complementary with the project. Temporary easements are acquired for right-of-use purposes during the construction period, such as temporary roadways used to maintain traffic. Requirements for temporary easements have been identified during preliminary engineering and do not represent “new” impacts caused by the design refinements, but rather are an additional level of detail now available based on construction planning.

#### 3.1.1 Changes in Long-Term Effects

The number of property acquisitions and displacements for the PE Wiehle Avenue Extension would be similar to those described in the Final EIS for the Wiehle Avenue Extension. The changes in effects due to the design refinements and the additional information that has been developed during PE are summarized in Table 3-2.



**TABLE 3-2: ANTICIPATED ACQUISITIONS AND DISPLACEMENTS<sup>1</sup>**

| Acquisition Type                                              | Final EIS<br>Wiehle Avenue<br>Extension | Changes in Effects<br>(PE vs. Final EIS) | PE<br>Wiehle Avenue<br>Extension   |
|---------------------------------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------|
| <b>Fee Acquisitions</b>                                       | <b>62 parcels<br/>(32.3 acres)</b>      | <b>3 parcels<br/>(-14.4 acres)</b>       | <b>65 parcels<br/>(17.9 acres)</b> |
| Private Residential Properties                                | 11 parcels<br>(3.9 acres)               | -2 parcel<br>(0.5 acres)                 | 9 parcels<br>(4.4 acres)           |
| Private Commercial Properties <sup>2</sup>                    | 37 parcels<br>(13.4 acres)              | 3 parcels<br>(-7.4 acres)                | 40 parcels<br>(6.0 acres)          |
| Government Properties <sup>3</sup>                            | 14 parcels<br>(15.0 acres)              | 2 parcel<br>(-7.5 acres)                 | 16 parcels<br>(7.5 acres)          |
| <b>Displacements Due to Project Facilities</b>                | <b>3</b>                                | <b>-2</b>                                | <b>1</b>                           |
| Residential                                                   | 0                                       | 0                                        | 0                                  |
| Business                                                      | 3                                       | -2                                       | 1                                  |
| <b>Displacements Due to Construction Activity<sup>4</sup></b> | <b>n.d.</b>                             | <b>6</b>                                 | <b>6</b>                           |
| Residential                                                   | n.d. <sup>5</sup>                       | 0                                        | 0                                  |
| Business                                                      | n.d. <sup>5</sup>                       | 6                                        | 6                                  |

Notes:

1 Final property requirements are subject to change based on final design plans and negotiations with property owners.

2 Private Commercial Property includes properties zoned for commercial, retail, office and industrial use.

3 Government Property includes approved proffers to be conveyed to governmental entity.

4 Displacements result from loss of parking, access, or vehicle circulation. Relocation assistance to be provided.

5 Not documented in Final EIS. Additional data now available based on results of preliminary engineering and associated construction planning.

In general, property acquisitions are predicted to increase or decrease by two to three properties, while displacements from project facilities are expected to decrease. By shifting the PE Wiehle Avenue alignment from the south side of Route 7 to the median, private property impacts would be reduced in terms of the area affected. More specific details regarding acquisitions and displacements are presented below.

- The number of parcels that would be fully or partially acquired for the Wiehle Avenue Extension has increased from 62 to 65, while the actual acreage being acquired would decrease from 32.3 acres to 17.9 acres.
- The number of displacements due to project facilities has decreased from three businesses displaced to one business displaced. Under both the Final EIS Wiehle Avenue Extension and the PE Wiehle Avenue Extension, the Merchants Tire and Auto Center on Route 7 would be displaced to accommodate construction of the Tysons Central 7 Station north entrance pavilion. The Final EIS Wiehle Avenue Extension would also displace the Cherner Auto Collision Center on Spring Hill Road and the Enterprise Car Rental office located within the Cherner building for construction of Tysons West Station facilities. However, relocation of the Tysons West Station bus bays from an interior parcel between Tyco Road and Spring Hill Road to a bus pull-off lane on the north side of Route 7 under the PE Wiehle Avenue Extension eliminates the need to permanently relocate the two businesses within the Cherner Collision Center property.

- In addition, renters at the Reston Self Storage facility on Sunset Hills Road would be eligible for personal property relocation assistance due to impacts to the building from construction of Wiehle Avenue Station facilities. Although the business itself would be able to continue at its present location after the owner is compensated for land and buildings taken and therefore does not constitute a displacement, some of the facility’s “tenants”—i.e., renters of storage space—would need to be relocated.

The acquisition of right-of-way and the relocation of displacees would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970, as amended (the Uniform Act), which requires all federal agencies to meet certain standards for the fair and equitable treatment of persons displaced by federally supported actions. Relocation resources would be made available to all residential, business, and nonprofit displacees without discrimination. In accordance with the Uniform Act, a detailed relocation study is currently being prepared as part of the preliminary engineering process. The relocation study will provide specific information on the number, type, and size of businesses to be displaced and will identify requirements for relocation assistance, including the availability of replacement business sites and consideration of any advisory services that may be necessary.

As noted above, additional information regarding easements for construction and utilities has also been developed as part of the preliminary engineering process. Easements required include permanent easements, utility easements, and temporary construction period easements.

- Permanent easements are required on 13 parcels (12.3 acres) to provide access to tie-breaker stations, rebuild a stormwater pond, construct underground retaining wall anchors, allow for aerial pedestrian crossings, aerial track crossings over the Washington and Old Dominion (W&OD) Railroad Regional Park, and for the use of portions of a Fairfax County fire station property and the Wiehle Avenue Park-and-Ride facility.
- A total of 49 underground utility service easements (3.1 acres) are necessary to provide corridors for affected utility lines outside the project right-of-way.
- Temporary construction easements would be required on 69 parcels (25.8 acres).

### 3.1.2 Construction Effects

In addition to the long-term acquisition and displacement effects associated with permanent project facilities, implementation of the PE Wiehle Avenue Extension would result in various temporary impacts associated with construction activities. Staging areas would be required for use during the construction period, and temporary roadways would replace the existing service roads along Route 7 so that traffic can be maintained during the construction of track and stations in the median of Route 7. Construction of the temporary roadways would involve the consolidation and elimination of some of the existing driveways and access points along the Route 7 service road, although businesses will be provided access to Route 7.

As shown in Table 3-2, six businesses along Route 7 would be displaced by construction of the temporary roadways during the three-year construction period, due to a loss of parking, access, or vehicle circulation. The Business Bank at the corner of Route 7 and Westpark Drive would have to be relocated during construction because the elevation difference between Route 7 and the customer parking area would preclude access to the parking area. The Wendy’s on the south side of Route 7 near the Route 123 interchange would lose parking and circulation during the three-year construction period, although the

building itself would not be impacted during construction. The Cherner Kia Izusu property at Route 7 and Spring Hill Road would lose about one-quarter of its land area, including the parking and new car staging area, during the construction period; however, the property owner also holds adjacent properties and could elect to reconfigure business operations and continue at this location. An additional three business displacements have been assumed due to the loss of parking spaces caused by the temporary roadways within Tysons Square Shopping Center and Pike 7 Plaza, even though these businesses would experience no physical impacts from the roadways.

Construction staging areas identified in the Final EIS also have changed somewhat based on the development of detailed construction plans during preliminary engineering. Figure 2-19 shows the staging areas included in the construction plan for the PE Wiehle Avenue Extension. Construction staging areas involving private properties have been reduced from four under the Final EIS Wiehle Avenue Extension to two under the PE alternative, with one of these two staging areas on the north side of Route 123 between Tysons Boulevard and International Drive. Applicable permits will be obtained for the use of the public lands which are owned by either MWAA or VDOT and identified as staging areas in the PE Wiehle Avenue Extension construction plan.

### **3.1.3 Mitigation**

No additional mitigation measures over those described in the Final EIS and committed to in the Record of Decision (ROD) are required as a result of the changes in effects described above.

## **3.2 VISUAL AND AESTHETIC CONDITIONS**

This section presents the changes in visual and aesthetic effects that would result from the PE Wiehle Avenue Extension and compares them to those documented in the Final EIS. The analysis methodology and the legal and regulatory context are unchanged and are described in Section 3.4 of the Final EIS.

Small changes in the existing conditions have occurred within Tysons Corner and along the Dulles Toll Road and Dulles International Airport Access Highway (DIAAH) in the form of continued development and/or redevelopment of commercial properties.

### **3.2.1 Changes in Long-Term Effects**

Analysis of visual impacts involves visible physical changes and the reaction of viewers to those changes. The sensitivity of views affects whether a visible physical change would have an adverse or beneficial visual impact. With the exception of Tysons Corner, the project is primarily located in existing transportation corridors and would have minimal effects to the existing visual and aesthetic conditions. Table 3-3 presents a summary of visual and aesthetic effects from the PE Wiehle Avenue Extension and a comparison of them to those documented in the Final EIS.

**TABLE 3-3: SUMMARY OF LONG-TERM VISUAL EFFECTS**

| Physical Changes                                                                                                                    | Visibility From                                                                                                                      | Viewer Types                                                  | Viewer Sensitivity <sup>1</sup> | Final EIS Wiehle Ave. Extension <sup>2</sup> | Changes in Effects (Final EIS vs. PE)   | PE Wiehle Ave. Extension <sup>2</sup> |
|-------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------|----------------------------------------------|-----------------------------------------|---------------------------------------|
| Orange Line Connection Visual Assessment Unit                                                                                       |                                                                                                                                      |                                                               |                                 |                                              |                                         |                                       |
| Metrorail alignment in Dulles Connector Road center median, including new rail yard lead, traction power substation                 | Dulles Connector Road                                                                                                                | Motorists<br>Transit riders                                   | Moderate                        | Minimal                                      | Modest reduction of impact              | Minimal                               |
|                                                                                                                                     |                                                                                                                                      | Residents                                                     | Moderate                        | Minimal                                      | Modest reduction of impact              | Minimal                               |
| West Falls Church Metrorail Yard improvements, including additional storage tracks, traction power station                          | West Falls Church Station                                                                                                            | Transit workers                                               | Moderate                        | Negligible                                   | No change                               | Negligible                            |
|                                                                                                                                     |                                                                                                                                      | Residents                                                     | Moderate                        | Minimal                                      | Modest reduction of impact              | Minimal                               |
| New Metrorail bridge over Pimmit Run                                                                                                | Dulles Connector Road, Pimmit Run Stream Valley Park                                                                                 | Motorists, transit riders                                     | Moderate                        | Negligible                                   | No change                               | Negligible                            |
|                                                                                                                                     |                                                                                                                                      | Recreational trail users                                      | High                            | Minimal                                      | No change                               | Minimal                               |
| Tysons Corner Visual Assessment Unit                                                                                                |                                                                                                                                      |                                                               |                                 |                                              |                                         |                                       |
| Elevated alignment along Route 123 and Route 7; underground alignment along Route 123 and Route 7; portals on Route 123 and Route 7 | Route 123, Route 7, intersecting and parallel roadways, adjacent commercial and uses along Route 123 and Route 7, distant residences | Motorists, transit riders, office / commercial viewers        | Moderate                        | Minimal                                      | Modest increase in impact along Route 7 | Minimal                               |
|                                                                                                                                     |                                                                                                                                      | Residents (distant)                                           | Moderate                        | Minimal                                      | Minimal change to views                 | Minimal                               |
| Tysons East Station: elevated; including traction power substation                                                                  | Route 123, Scotts Crossing/ Colshire Drive; adjacent offices; nearby residences                                                      | Motorists, transit riders, office workers                     | Moderate                        | Minimal                                      | Modest reduction of impact              | Minimal                               |
|                                                                                                                                     |                                                                                                                                      | Residents                                                     | High                            | Minimal                                      | No change                               | Minimal                               |
| Tysons Central 123 Station: elevated; including traction power substation                                                           | Route 123, Tysons Boulevard, adjacent and nearby commercial uses (malls), Scotts Run Stream Valley Park                              | Motorists, transit riders, commercial viewers                 | Moderate                        | Minimal                                      | Modest reduction of impact              | Minimal                               |
| Tysons Central 7 Station                                                                                                            | Route 7, adjacent commercial uses, adjacent offices                                                                                  | Motorists, transit riders, commercial viewers, office workers | Moderate                        | Minimal                                      | Modest increase in impact               | Minimal                               |

**TABLE 3-3: SUMMARY OF LONG-TERM VISUAL EFFECTS**

| Physical Changes                                                                     | Visibility From                                                                                                                                                                         | Viewer Types                                                                                                                  | Viewer Sensitivity <sup>1</sup> | Final EIS Wiehle Ave. Extension <sup>2</sup> | Changes in Effects (Final EIS vs. PE) | PE Wiehle Ave. Extension <sup>2</sup> |
|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------|----------------------------------------------|---------------------------------------|---------------------------------------|
| Tysons West Station: elevated                                                        | DIAAH, Dulles Toll Road, Route 7, Westwood Center Drive/Tyco Road adjacent offices, nearby hotels, commercial uses; distant residences; Ash Grove historic site                         | Motorists, transit riders, office workers, commercial viewers, hotel guests, employees, distant residents, recreational users | Moderate                        | Minimal                                      | Modest reduction of impact            | Minimal                               |
| <b>Mid-Corridor Visual Assessment Unit</b>                                           |                                                                                                                                                                                         |                                                                                                                               |                                 |                                              |                                       |                                       |
| At-grade alignment in DIAAH (center median), including removal of median landscaping | DIAAH, Dulles Toll Road, crossing roads, plus some adjacent land uses (though mostly screened by sound walls, landscaping, and topography), Hunter Mill Road Proposed Historic District | Motorists, transit riders, misc. viewers in adjacent land uses                                                                | Moderate                        | Minimal                                      | Negligible change in effect           | Minimal                               |
|                                                                                      |                                                                                                                                                                                         | Residents                                                                                                                     | High                            | Negligible                                   | No change                             | Negligible                            |
| Wiehle Avenue Station                                                                | DIAAH, Dulles Toll Road, Wiehle Avenue, adjacent parking areas, adjacent office buildings, adjacent roadways                                                                            | Motorists, transit riders, office workers                                                                                     | Moderate                        | Minimal                                      | Modest reduction of impact            | Minimal                               |

## Notes:

- 1 Viewer sensitivity levels to visual changes are determined based on the viewers' familiarity with the environment, what they are doing, how much time they spend looking at the environment, and their sense of ownership of the view.
- 2 Substantial visual impacts are those that result in deterioration in the ability to use the adjacent land as intended, a reduction in the quality of that use, obstruction of an important view, interference with a specific design in the environment, degradation of a natural condition, removal of a substantial portion or the last amount of landscaping or the natural vegetation, or similar levels of visual disturbance. Less than substantial impacts are those visual effects that would not result in these conditions. Minimal visual impacts are those that would be barely noticeable to the general public.

As outlined in Table 3-3, the long-term visual effects of the proposed PE Wiehle Avenue Extension would be similar to those identified for the Final EIS Wiehle Avenue Extension. The PE Wiehle Avenue Extension would introduce few new visual elements from those presented in the Final EIS Wiehle Avenue Extension, and have a minimal effect on sensitive resources and viewers.

Descriptions of the design refinements as they relate to the changes in visual and aesthetic conditions are presented in more detail below.



- The outbound and inbound profiles of the Orange Line Connection have been lowered from the proposed eastern terminus of the project to a point approximately 2,000 feet north. This reduction in the height of the aerial alignment would result in a modest reduction in the visual impact to the Westhampton and Idylwood neighborhoods.
- At the West Falls Church Storage and Inspection (S&I) Yard, some trees would be removed from WMATA property to add a stormwater management pond. However, due to the existing change in grade between the Idylwood neighborhood and the yard, the neighborhood would have an obstructed view of the stormwater pond and the visual impact would be negligible.
- The relocation of the station fare collection facilities to the ground level would decrease the overall height of the station. This would result in a modest reduction in the overall visual effect.
- The length of the tunnel section along Route 7 has been reduced by approximately 2,300 feet. This would increase the length of the aerial alignment making it more visible to pedestrians and motorists. However, because this alignment is within a transportation corridor and highly developed commercial area, the visual impact associated with the elevated alignment would be minimal.
- Due to the reduction of the length of the tunnel along Route 7, the portal was moved and incorporated within the Tysons Central 7 Station. The station would be partially at-grade and partially above grade rather than underground and the underground pedestrian walkways to the station would be replaced by elevated bridges. This change in station design and the incorporation of the portal into the station would result in making the station more visible to the public, but the overall effect would be minimal.
- The aerial alignment along Route 7 from Tysons Central 7 Station to the Dulles Toll Road would shift to the median of the roadway. This shift would result in a modest reduction in the visual impact for the adjacent buildings along the south side of Route 7.
- Along the DIAAH, the alignment has been redesigned to more closely follow the existing topography and an additional stormwater pond was added. For motorists and transit riders, this change would result in a negligible change in effect.
- At the Tysons East, Tysons Central 123, Tysons West, and Wiehle Avenue stations, the reduced length of the platform canopy and reduced width of pedestrian bridges would result in a modest reduction of the overall visual effect of the elevated stations.

### 3.2.2 Construction Effects

The visual effects associated with construction of the PE Wiehle Avenue Extension would be similar to and include those described in Section 3.4.4 of the Final EIS. Although more information has been developed regarding construction activities, staging, and sequencing for the project, no changes in the effects presented in the Final EIS are anticipated.

### 3.2.3 Mitigation

No additional mitigation measures over those committed to in the ROD are required as a result of the changes in effects described above.

### 3.3 AIR QUALITY

This section presents the potential long-term and construction effects of the proposed PE Wiehle Avenue Extension on air quality, as compared to the effects presented for the Wiehle Avenue Extension in the Final EIS. A detailed discussion of the statutes and regulations concerning air quality, analysis methodology, study area definition, and existing air quality in the corridor is provided in Section 4.6 of the Final EIS. This information has not changed.

The study area is within the area covered by the Metropolitan Washington Council of Governments (MWCOC), which has responsibilities related to transportation and air quality planning in the Washington Metropolitan Region including the multi-jurisdictional Washington, DC-MD-VA nonattainment area. MWCOC develops the region's transportation and air quality strategies as well as specific plans and programs to reduce emissions. The current constrained long-range plan (CLRP) and transportation improvement program (TIP) include the Dulles Corridor Metrorail Project and have been found to be in conformity with the State Implementation Plan (SIP) for the Washington, DC-MD-VA Region.

#### 3.3.1 Changes in Long-Term Effects

The preliminary engineering design refinements would result in changes in traffic flow along Route 7 between Route 123 and the Dulles Toll Road. To account for these changes, a new air quality analysis was conducted for the PE Wiehle Avenue Extension at the intersections where the proposed future geometry has changed. The following three intersections shown in Figure 3-1 were reanalyzed:

- Route 7/Westpark Drive
- Route 7/Spring Hill Road
- Route 7/Tyco Road/Westwood Center Drive

Table 3-4 presents the change in predicted carbon monoxide (CO) concentrations at these intersections for 2011 (the opening year of the Wiehle Avenue Extension), and 2025 (the forecast year). The effects are similar to those documented in the Final EIS, but are lower than year 2000 levels.

**TABLE 3-4: MAXIMUM PREDICTED CO CONCENTRATIONS IN PARTS PER MILLION (PPM)**

| Intersection                            | Existing | Final EIS Wiehle Avenue Extension |      | Change in Effects (Final EIS vs. PE) |       | PE Wiehle Avenue Extension |      |
|-----------------------------------------|----------|-----------------------------------|------|--------------------------------------|-------|----------------------------|------|
|                                         | 2000     | 2011                              | 2025 | 2011                                 | 2025  | 2011                       | 2025 |
| <b>I-Hour Concentrations</b>            |          |                                   |      |                                      |       |                            |      |
| Route 7/Westpark Drive                  | 10.4     | 9.1                               | 8.3  | - 0.2                                | + 0.2 | 8.9                        | 8.5  |
| Route 7/Spring Hill Road                | 11.4     | 8.6                               | 8.3  | + 0.4                                | + 0.2 | 9.0                        | 8.5  |
| Route 7/Tyco Road/Westwood Center Drive | 11.6     | 8.8                               | 8.3  | + 0.2                                | + 0.6 | 9.0                        | 8.9  |

**TABLE 3-4: MAXIMUM PREDICTED CO CONCENTRATIONS IN PARTS PER MILLION (PPM)**

| Intersection                            | Existing | Final EIS Wiehle Avenue Extension |      | Change in Effects (Final EIS vs. PE) |       | PE Wiehle Avenue Extension |      |
|-----------------------------------------|----------|-----------------------------------|------|--------------------------------------|-------|----------------------------|------|
|                                         | 2000     | 2011                              | 2025 | 2011                                 | 2025  | 2011                       | 2025 |
| <b>8-Hour Concentrations</b>            |          |                                   |      |                                      |       |                            |      |
| Route 7/Westpark Drive                  | 6.1      | 5.2                               | 4.6  | -0.2                                 | +0.2  | 5.0                        | 4.8  |
| Route 7/Spring Hill Road                | 6.8      | 4.8                               | 4.6  | + 0.3                                | + 0.2 | 5.1                        | 4.8  |
| Route 7/Tyco Road/Westwood Center Drive | 6.9      | 5.0                               | 4.6  | + 0.1                                | + 0.4 | 5.1                        | 5.0  |

The long-term air quality effects associated with the proposed PE Wiehle Avenue Extension would be similar to those identified for the Final EIS Wiehle Avenue Extension as follows:

- The modest increases in predicted CO concentrations are due to the revised geometry of Route 7, including the elimination of the service roads. The proposed changes decrease the distances from the primary travel lanes along Route 7 to the receptors, which increases the maximum concentrations slightly.
- Even with the increases, the maximum concentrations are still well below the National Ambient Air Quality Standards (NAAQS) of 35 parts per million (ppm) for the 1-hour maximum and 9 ppm for the 8-hour maximum at the affected intersections.

### 3.3.2 Construction Effects

The effects to air quality that would result from construction of the PE Wiehle Avenue Extension would be similar to and include those documented in Section 4.6.5 of the Final EIS. Although more information has been developed regarding construction activities, staging, and sequencing for the project, no changes in the effects presented in the Final EIS are anticipated.

### 3.3.3 Mitigation

Like the Final EIS Wiehle Avenue Extension, no long-term impacts to regional air quality are anticipated from the construction and operation of the PE Wiehle Avenue Extension; therefore, no mitigation measures are proposed. During construction, to mitigate construction-related effects on air quality, the project team would comply with all applicable regulations and ordinances as required by the ROD.

## 3.4 NOISE

This section presents the potential long-term and construction effects of the proposed PE Wiehle Avenue Extension from noise, as compared to the effects presented for the Wiehle Avenue Extension in the Final EIS. A detailed discussion of the human perception of noise; federal, state and local impact evaluation criteria; analysis methodology and assumptions; study area definition; and ambient and existing noise levels in the corridor is provided in Section 4.7 of the Final EIS. This information has not changed. Additional information regarding study area noise is provided in the *Noise and Vibration Technical Report* (November 2004).



### 3.4.1 Changes in Long-Term Effects

The shift in the alignment as it makes the turn from I-66 and the Orange Line to the median of the Dulles Connector Road results in moving the rail alignment slightly closer to the residential receptors located west of the roadway. This shift would result in modest noise increases for these receptors. The shift in alignment along Route 7 in Tysons Corner results in moving the elevated section of the Metrorail alignment from the south side service road to the median of Route 7 between Route 123 and the Dulles Toll Road. This shift in alignment will result in a decrease in noise levels for receptors located along the south side of the rail alignment, and an increase in noise levels for receptors located along the north side of the rail alignment. By reducing the length of the tunnel section in Tysons Corner, receptors that were previously not exposed to noise from the project because the alignment was underground, will now be exposed to project transit noise. In addition, receptors located near the new at-grade Tysons Central 7 Station will also be exposed to noise from idling trains at the station.

The metrics used for the FTA noise impact assessment are  $L_{dn}$  noise levels for residential receptors and  $L_{eq}(h)$  noise levels for non-residential receptors. The  $L_{dn}$  measure is a cumulative 24-hour noise that accounts for the total number of train operations that occur during both daytime and nighttime periods with a 10-dBA penalty added to the train operations that occur during the night (10:00 PM to 7:00 AM). The  $L_{eq}(h)$  measure accounts for the cumulative exposure to noise during the loudest hour of train operations during the day. Changes in the predicted project noise levels at specific residential (Category 2) and commercial (Category 3) receptors along this section of the project corridor are detailed in Table 3-5. The noise receptor locations are shown in Figure 3-2.

The Washington Metropolitan Area Transit Authority (WMATA) noise criteria is based on the maximum noise level ( $L_{max}$ ) that occurs during a single train passby. The predicted changes in the  $L_{max}$  noise levels at the discrete receptor locations are shown in Table 3-6.

In general, corridor-wide project noise levels are predicted to increase or decrease from one to two decibels along Route 7 in Tysons Corner due to the shift in the alignment to the median. More specific details regarding the predicted noise levels are presented following the tables. Like in the Final EIS, the noise levels for the revised PE design documented in Tables 3-5 and 3-6 are without mitigation measures.

**TABLE 3-5: COMPARISON OF FTA NOISE IMPACTS AT DISCRETE RECEPTORS<sup>1</sup>**

| No. | Description and Location                  | FTA Land Use Cat. | Final EIS Predicted Noise Levels <sup>2</sup> (dBA) | Changes in Effects (Final EIS vs. PE) | PE Predicted Noise Levels <sup>2</sup> (dBA) | FTA Impact Criteria Threshold (dBA) |               |
|-----|-------------------------------------------|-------------------|-----------------------------------------------------|---------------------------------------|----------------------------------------------|-------------------------------------|---------------|
|     |                                           |                   |                                                     |                                       |                                              | Impact                              | Severe Impact |
| R1  | Pavilion Townhouses, Falls Reach Drive    | 2                 | 47 Ldn                                              | No change                             | 47 Ldn                                       | 59 Ldn                              | 64 Ldn        |
| R2  | 2134 Greenwich Street                     | 2                 | 61 Ldn                                              | No change                             | 61 Ldn                                       | 61 Ldn                              | 67 Ldn        |
| R3  | 7103 Norwalk Street                       | 2                 | <b>65 Ldn</b>                                       | No change                             | <b>65 Ldn</b>                                | 59 Ldn                              | 64 Ldn        |
| R4  | 1726 Baldwin Drive                        | 2                 | 49 Ldn                                              | No change                             | 49 Ldn                                       | 56 Ldn                              | 62 Ldn        |
| R5  | Hallcrest Heights<br>7405 Hallcrest Drive | 2                 | <b>64 Ldn</b>                                       | No change                             | <b>64 Ldn</b>                                | 57 Ldn                              | 63 Ldn        |

TABLE 3-5: COMPARISON OF FTA NOISE IMPACTS AT DISCRETE RECEPTORS<sup>1</sup>

| No.             | Description and Location                           | FTA Land Use Cat. | Final EIS Predicted Noise Levels <sup>2</sup> (dBA) | Changes in Effects (Final EIS vs. PE) | PE Predicted Noise Levels <sup>2</sup> (dBA) | FTA Impact Criteria Threshold (dBA) |               |
|-----------------|----------------------------------------------------|-------------------|-----------------------------------------------------|---------------------------------------|----------------------------------------------|-------------------------------------|---------------|
|                 |                                                    |                   |                                                     |                                       |                                              | Impact                              | Severe Impact |
| R6              | Mitre Office Building<br>7798 Dolley Madison Blvd. | 3                 | 57 Ldn                                              | No change                             | 57 Leq                                       | 67 Leq                              | 72 Leq        |
| R7 <sup>3</sup> | Xerox Office Building<br>7900 Westpark Drive       | 3                 | 60 Leq                                              | No change                             | 60 Leq                                       | 65 Leq                              | 70 Leq        |
| R13             | La Madeleine Restaurant<br>1915 Chain Bridge Road  | 3                 | 60 Leq                                              | -1 dBA                                | 59 Leq                                       | 67 Leq                              | 72 Leq        |
| R13-A           | Marriott Courtyard Hotel<br>1960 Chain Bridge Road | 2                 | n.d. <sup>4</sup>                                   | --                                    | 43 Ldn                                       | 60 Ldn                              | 65 Ldn        |
| R14             | Clyde's Restaurant<br>8332 Leesburg Pike           | 3                 | n.d. <sup>4</sup>                                   | --                                    | 50 Leq                                       | 63 Leq                              | 69 Leq        |
| R15             | Cellular One<br>8359 Leesburg Pike                 | 3                 | n.d. <sup>4</sup>                                   | --                                    | 57 Leq                                       | 66 Leq                              | 72 Leq        |
| R15-A           | Business Bank<br>8399 Leesburg Pike                | 3                 | n.d. <sup>4</sup>                                   | --                                    | 63 Leq                                       | 65 Leq                              | 71 Leq        |
| R16             | Best Western Hotel<br>8401 Westpark Drive          | 2                 | n.d. <sup>4</sup>                                   | --                                    | 58 Ldn                                       | 60 Ldn                              | 65 Ldn        |
| R17             | Ernst & Young Building<br>8484 Westpark Drive      | 3                 | n.d. <sup>4</sup>                                   | --                                    | 61 Leq                                       | 67 Leq                              | 73 Leq        |
| R17-A           | Embassy Suites Hotel<br>8517 Leesburg Pike         | 2                 | 60 Ldn                                              | -2 dBA                                | 58 Ldn                                       | 60 Ldn                              | 65 Ldn        |
| R17-B           | 8521 Leesburg Pike                                 | 3                 | 63 Leq                                              | -2 dBA                                | 61 Leq                                       | 67 Leq                              | 73 Leq        |
| R17-C           | 8500 Leesburg Pike                                 | 3                 | 60 Leq                                              | +2 dBA                                | 62 Leq                                       | 67 Leq                              | 73 Leq        |
| R18             | Moore Cadillac<br>8595 Leesburg Pike               | 3                 | 60 Leq                                              | -2 dBA                                | 58 Leq                                       | 65 Leq                              | 71 Leq        |
| R18-A           | Sheraton Premier Hotel<br>8661 Leesburg Pike       | 2                 | <b>64 Ldn</b>                                       | -4 dBA                                | 60 Ldn                                       | 55 Ldn                              | 61 Ldn        |
| R19             | Westwood Townhouses<br>Leeds Castle Drive          | 2                 | 61 Ldn                                              | -1 dBA                                | 60 Ldn                                       | 55 Ldn                              | 61 Ldn        |
| R20             | 1468 Carrington Ridge Lane                         | 2                 | 59 Ldn                                              | No change                             | 59 Ldn                                       | 60 Ldn                              | 66 Ldn        |

Notes:

- Predicted noise levels are without mitigation.
- Use of italics or bold italics indicates an exceedance of the FTA land use category 2 or 3 impact criteria. *Italics* indicate an impact and **bold italics** indicate a severe impact. Planned mitigation measures will reduce impacts below FTA criteria at these locations.
- Receptors R8 through R12 were originally selected to evaluate an alignment option through Tysons Corner (T4) eliminated from further consideration after the Draft EIS.
- Not documented in the Final EIS. Predicted noise levels not available because receptor was located along the tunnel section of the alignment.



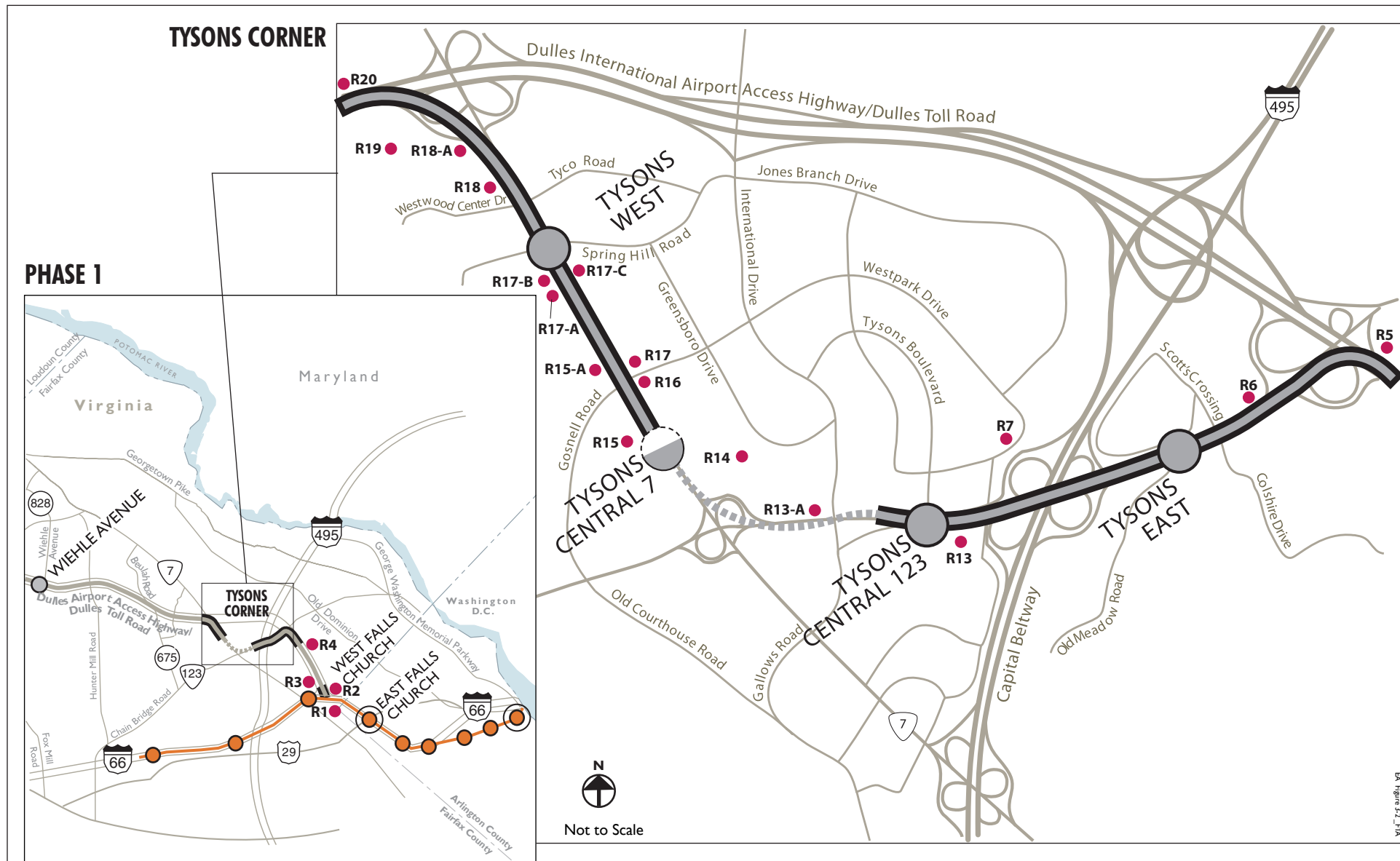


**TABLE 3-6: COMPARISON OF WMATA NOISE IMPACTS AT DISCRETE RECEPTORS<sup>1</sup>**

| <b>No.</b>      | <b>Description and Location</b>                    | <b>WMATA Land Use Category</b> | <b>Final EIS Predicted L<sub>max</sub> Noise Levels<sup>2</sup> (dBA)</b> | <b>Changes in Effects (Final EIS vs. PE)</b> | <b>PE Predicted L<sub>max</sub> Noise Levels<sup>2</sup> (dBA)</b> | <b>WMATA L<sub>max</sub> Impact Criteria (dBA)</b> |
|-----------------|----------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------|--------------------------------------------------------------------|----------------------------------------------------|
| R1              | Pavilion Townhouses, Falls Reach Drive             | MFAM V                         | 59                                                                        | No change                                    | 59                                                                 | 85                                                 |
| R2              | 2134 Greenwich Street                              | SFAM V                         | 75                                                                        | No change                                    | 75                                                                 | 80                                                 |
| R3              | 7103 Norwalk Street                                | SFAM III                       | <b>78</b>                                                                 | No change                                    | <b>78</b>                                                          | 75                                                 |
| R4              | 1726 Baldwin Drive                                 | SFAM III                       | 62                                                                        | No change                                    | 62                                                                 | 75                                                 |
| R5              | Hallcrest Heights<br>7405 Hallcrest Drive          | MFAM V                         | 77                                                                        | No change                                    | 77                                                                 | 85                                                 |
| R6              | Mitre Office Building<br>7798 Dolley Madison Blvd. | COM IV                         | 66                                                                        | No Change                                    | 66                                                                 | 85                                                 |
| R7 <sup>3</sup> | Xerox Office Building<br>7900 Westpark Drive       | COM IV                         | 75                                                                        | No Change                                    | 75                                                                 | 85                                                 |
| R13             | La Madeleine Restaurant<br>1915 Chain Bridge Road  | COM IV                         | 74                                                                        | -1 dBA                                       | 73                                                                 | 85                                                 |
| R13-A           | Marriott Courtyard Hotel<br>1960 Chain Bridge Road | COM IV                         | n.d. <sup>4</sup>                                                         | --                                           | 66                                                                 | 85                                                 |
| R14             | Clyde's Restaurant<br>8332 Chain Bridge Road       | COM IV                         | n.d. <sup>4</sup>                                                         | --                                           | 66                                                                 | 85                                                 |
| R15             | Cellular One<br>8359 Leesburg Pike                 | COM IV                         | n.d. <sup>4</sup>                                                         | --                                           | 72                                                                 | 85                                                 |
| R15-A           | Business Bank<br>8399 Leesburg Pike                | COM IV                         | n.d. <sup>4</sup>                                                         | --                                           | 78                                                                 | 85                                                 |
| R16             | Best Western Hotel<br>8401 Westpark Drive          | COM IV                         | n.d. <sup>4</sup>                                                         | --                                           | 72                                                                 | 85                                                 |
| R17             | Ernst & Young Building<br>8484 Westpark Drive      | COM IV                         | n.d. <sup>4</sup>                                                         | --                                           | 76                                                                 | 85                                                 |
| R17-A           | Embassy Suites Hotel<br>8517 Leesburg Pike         | COM IV                         | 74                                                                        | -2 dBA                                       | 72                                                                 | 85                                                 |
| R17-B           | 8521 Leesburg Pike                                 | COM IV                         | 80                                                                        | -3 dBA                                       | 77                                                                 | 85                                                 |
| R17-C           | 8500 Leesburg Pike                                 | COM IV                         | 74                                                                        | +3 dBA                                       | 77                                                                 | 85                                                 |
| R18             | Moore Cadillac<br>8595 Leesburg Pike               | COM IV                         | 76                                                                        | -3 dBA                                       | 73                                                                 | 85                                                 |
| R18-A           | Sheraton Premier Hotel<br>8661 Leesburg Pike       | COM IV                         | 78                                                                        | -1 dBA                                       | 77                                                                 | 85                                                 |
| R19             | Westwood Townhouses<br>Leeds Castle Drive          | MFAM V                         | 73                                                                        | No Change                                    | 73                                                                 | 85                                                 |

**TABLE 3-6: COMPARISON OF WMATA NOISE IMPACTS AT DISCRETE RECEPTORS<sup>1</sup>**

| <b>No.</b> | <b>Description and Location</b> | <b>WMATA Land Use Category</b> | <b>Final EIS Predicted L<sub>max</sub> Noise Levels<sup>2</sup> (dBA)</b> | <b>Changes in Effects (Final EIS vs. PE)</b> | <b>PE Predicted L<sub>max</sub> Noise Levels<sup>2</sup> (dBA)</b> | <b>WMATA L<sub>max</sub> Impact Criteria (dBA)</b> |
|------------|---------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------|--------------------------------------------------------------------|----------------------------------------------------|
| R20        | 1468 Carrington Ridge Lane      | SFAM III                       | 72                                                                        | No Change                                    | 72                                                                 | 75                                                 |

Notes:

- 1 Predicted noise levels are without mitigation.
- 2 Use of bold indicates an exceedance of the WMATA impact criteria. Planned mitigation measures will reduce impacts below WMATA criteria at these locations.
- 3 Receptors R8 through R12 were originally selected to evaluate an alignment option through Tysons Corner (T4) eliminated from further consideration after the Draft EIS.
- 4 Not documented in the Final EIS. Predicted noise levels not available because receptor was located along the tunnel section of the alignment.

More specific information regarding changes in noise levels relative to the FTA criteria are presented below.

- Exceedances are listed for one of the additional discrete receptor locations (R18-A) added for this EA. This location was accounted for as one of the 10 receptors in the Final EIS that was predicted as a severe impact. However, under the PE revised alignment this receptor changes from a severe impact to an impact.
- In addition to the discrete receptors shown in Table 3-5, all of the receptors potentially affected by the design refinements were evaluated for the EA to determine if the shift in alignment resulted in other impact changes along this section of the corridor. The results of this assessment indicated that there were no other changes.
- Slight changes are predicted in the total number of receptors expected to experience noise impacts along the project corridor. The number of receptors predicted to exceed the FTA Category 2 Land Use impact criteria increases to 175 receptors under PE Wiehle Avenue Extension (versus 174 receptors in the Final EIS) and the number of receptors predicted to exceed the severe impact criteria decreases to 9 receptors under the PE Wiehle Avenue Extension (versus 10 in the Final EIS).
- At each location where an exceedance of the FTA noise impact criteria is predicted in Table 3-5, the planned mitigation measures will reduce the project noise to a level that is below the FTA criteria for noise impact.
- For the impacted receptors identified in Table 3-5, the recommended noise mitigation from the Final EIS is a 6-foot high parapet wall to provide the necessary noise reduction. For receptor location R3, the 6-foot parapet wall is expected to reduce the predicted L<sub>dn</sub> noise level from 65 dBA to 58 dBA. For receptor location R5, the 6-foot high parapet wall is expected to reduce the predicted L<sub>dn</sub> noise level from 64 dBA to 57 dBA. For receptor locations R18-A and R19, the 6-foot high parapet wall is expected to reduce the predicted L<sub>dn</sub> noise level from 60 dBA to 53 dBA.

Using the WMATA criteria, the predicted project  $L_{\max}$  noise levels are expected to increase or decrease by one to three decibels along Route 7 in Tysons Corner due to the shift in the alignment to the median. More specific details regarding the predicted noise levels are presented below.

- The changes in noise levels (including the predicted  $L_{\max}$  noise levels at receptors previously located along the tunnel section of the Final EIS alignment) do not result in any changes to the WMATA noise impact assessment results presented in the Final EIS. For the overall project, noise levels at a total of 48 receptors (46 residential and 2 commercial) are still predicted to exceed the WMATA  $L_{\max}$  criteria prior to the implementation of mitigation measures .
- Although there are no changes from the noise level reported in the Final EIS, one of exceedances is located in an area affected by the design refinements. At receptor location R3, the mitigation recommended in the Final EIS for this location (a 6-foot high parapet wall) would reduce the predicted  $L_{\max}$  noise level from 78 dBA to 71 dBA.
- In addition to the discrete receptors shown in Table 3-6, other receptors potentially affected by the design refinements were also evaluated. No changes in impacts at these locations were identified.

### 3.4.2 Construction Effects

Noise levels from construction activities along the Dulles Corridor, although temporary, could create a nuisance condition at nearby sensitive receptors. The short-term noise effects that would result from construction of the PE Wiehle Avenue Extension would be similar to and include those described in Section 4.7.6 of the Final EIS for the Wiehle Avenue Extension.

### 3.4.3 Mitigation

No additional mitigation measures over those committed to in the ROD are required as a result of the changes in effects described above.

Like the Final EIS Wiehle Avenue Extension, all aerial sections of the PE Wiehle Avenue Extension would include parapet walls (with some areas needing parapet walls of increased height) or trackside barriers to mitigate noise levels from train operations. The new section of aerial alignment in Tysons Corner would also include a parapet wall. The project's standard 3-foot high parapet wall on the aerial sections of the corridor is expected to provide 2-3 dBA noise reduction. In areas where a 4-foot high parapet wall is recommended, the expected noise reduction is 3-4 dBA, and in areas where a 6-foot high parapet wall is recommended, the expected noise reduction is 6-7 dBA.

Additional noise analysis for the project is ongoing to identify the specific mitigation design to be implemented near the areas of impact and severe impact as documented in the forthcoming preliminary engineering *Wayside Noise Report*.. The mitigation measures being advanced are consistent with those committed to in the ROD.

## 3.5 VIBRATION

This section presents the potential long-term and construction effects of the proposed PE Wiehle Avenue Extension from vibration, as compared to the effects presented for the Wiehle Avenue Extension in the Final EIS. A detailed discussion of the human perception of vibration; federal, state, and local impact

evaluation criteria; analysis methodology and assumptions; study area definition; and existing vibration levels in the corridor is provided in Section 4.8 of the Final EIS. This information has not changed.

Additional information regarding study area vibration is provided in the *Noise and Vibration Technical Report* (November 2004).

### 3.5.1 Changes in Long-Term Effects

The shift in the project alignment along Route 7 will have only a minor effect on the predicted vibration levels from the project. Since the primary propagation path for the vibration from the elevated section of the rail corridor to the ground below is through the supporting pylons, shifting the alignment from the service road to the median of Route 7 will result in a decrease in the predicted vibration levels at the receptor locations along the south side of the rail corridor, and an increase in the predicted vibration levels at receptor locations along the north side of the rail corridor.

Table 3-7 includes a summary of the change in effects between the Final EIS Wiehle Avenue Extension and the PE Wiehle Avenue Extension.

**TABLE 3-7: COMPARISON OF VIBRATION EFFECTS**

| Measure                                        | Final EIS<br>Wiehle Avenue<br>Extension | Changes in Effects<br>(Final EIS vs. PE)           | PE<br>Wiehle Avenue<br>Extension |
|------------------------------------------------|-----------------------------------------|----------------------------------------------------|----------------------------------|
| Vibration Receptors Above FTA Criteria         | 7                                       | -1 Receptor<br>(Business Bank in<br>Tysons Corner) | 6                                |
| Vibration Receptors above WMATA Criteria       | 15                                      | -1 Receptor<br>(Business Bank in<br>Tysons Corner) | 14                               |
| Groundborne Noise Receptors Above FTA Criteria | 15                                      | -1 Receptor<br>(Business Bank in<br>Tysons Corner) | 14                               |

For an FTA vibration impact to occur, a receptor would have to be located within 20 feet of the rail alignment along the at-grade section of the rail corridor or 20 feet from the pylons along the elevated section of the rail corridor. With the shift in alignment to the median of Route 7, no receptors are located within 20 feet of the project corridor. In comparison, one vibration impact was predicted in the Tysons Corner area in the Final EIS—the Business Bank located at the corner of Route 7 and Gosnell Drive.

The WMATA vibration impact criteria for residential receptors are more stringent than the FTA criteria (70 VdB for WMATA versus 72 VdB for FTA). Using this criteria one commercial receptor (the Business Bank along Route 7 in Tysons Corner) would no longer experience vibration effects due to the shift in alignment to the median of Route 7. The total number of WMATA vibration impacts at residential receptors along the Dulles Connector Road under the Wiehle Avenue Extension remains at fourteen.

### 3.5.2 Construction Effects

The short-term vibration effects that would result from construction of the PE Wiehle Avenue Extension would be similar to and include those described in Section 4.8.6 of the Final EIS for the Wiehle Avenue Extension. As in the Final EIS, vibration levels from preliminary engineering construction activities would be below both the FTA and WMATA criteria for damage.

### 3.5.3 Mitigation

No additional mitigation measures over those committed to in the ROD are required as a result of the changes in effects described above. During construction, DRPT would use construction methods that minimize vibration and comply with any applicable regulations governing vibration.

## 3.6 WATER RESOURCES

This section presents the changes in effects to water resources that would result from the PE Wiehle Avenue Extension and compares them to the effects documented in the Final EIS. Water resources include streams, wetlands, floodplains, Chesapeake Bay Preservation Areas (CBPAs), environmental quality corridors (EQCs), and the coastal zone. The analysis methodology, the legal and regulatory context, and existing conditions are unchanged and are described in Section 4.2 of the Final EIS.

### 3.6.1 Changes in Long-Term Effects

Potential long-term effects of the PE Wiehle Avenue Extension would be similar to and include those described in the Final EIS for wetlands, streams, water quality, floodplains, CBPAs, EQCs, and the coastal zone. Table 3-8 provides a summary of water resources effects associated with the PE Wiehle Avenue Extension in relation to those documented in the Final EIS. Water resources are shown in Figure 3-3.

**TABLE 3-8: SUMMARY OF LONG-TERM EFFECTS ON WATER RESOURCES**

| Measure                                                  | Final EIS<br>Wiehle Avenue<br>Extension                                                              | Changes in Effects<br>(Final EIS vs. PE)                                                              | PE<br>Wiehle Avenue<br>Extension                                                                     |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Pimmit Run and Associated Unnamed Perennial Stream (W-2) | Proximity <sup>1</sup><br>Floodplain <sup>2</sup><br>CBPA <sup>3</sup><br>Water Quality <sup>4</sup> | Less proximity and<br>water quality effect<br>Additional minor<br>effects to CBPA                     | Proximity <sup>1</sup><br>Floodplain <sup>2</sup><br>CBPA <sup>3</sup><br>Water Quality <sup>4</sup> |
| Scotts Run (W-4)                                         | Floodplain <sup>2</sup><br>CBPA <sup>3</sup><br>Water Quality <sup>4</sup>                           | Direct impacts to<br>Scotts Run avoided<br>Less effect to the<br>CBPA<br>Less water quality<br>effect | Floodplain <sup>2</sup><br>CBPA <sup>3</sup><br>Water Quality <sup>4</sup>                           |
| Unnamed Perennial Stream near (W-4)                      | None                                                                                                 | No change                                                                                             | None                                                                                                 |
| Intermittent Stream near Tysons East Station (W-63)      | None                                                                                                 | No change                                                                                             | None                                                                                                 |
| Courthouse Spring Branch                                 | None                                                                                                 | No change                                                                                             | None                                                                                                 |



**TABLE 3-8: SUMMARY OF LONG-TERM EFFECTS ON WATER RESOURCES**

| <b>Measure</b>       | <b>Final EIS<br/>Wiehle Avenue<br/>Extension</b> | <b>Changes in Effects<br/>(Final EIS vs. PE)</b> | <b>PE<br/>Wiehle Avenue<br/>Extension</b> |
|----------------------|--------------------------------------------------|--------------------------------------------------|-------------------------------------------|
| Wolftrap Run         | None                                             | No change                                        | None                                      |
| Difficult Run (W-13) | None                                             | No change                                        | None                                      |

## Notes:

- 1 Proximity to construction could alter the hydrology and/or function of water resources
- 2 Potential effect to 100-Year Floodplain. However, increases in floodplain elevations of more than one foot are not anticipated.
- 3 Construction of railroad facilities is exempt from the Chesapeake Bay Preservation Act when construction complies with applicable regulations for stormwater and sediment and erosion control. Minimal effects are anticipated with the use of required Best Management Practices (BMPs).
- 4 Minimal effect due to use of required BMPs.

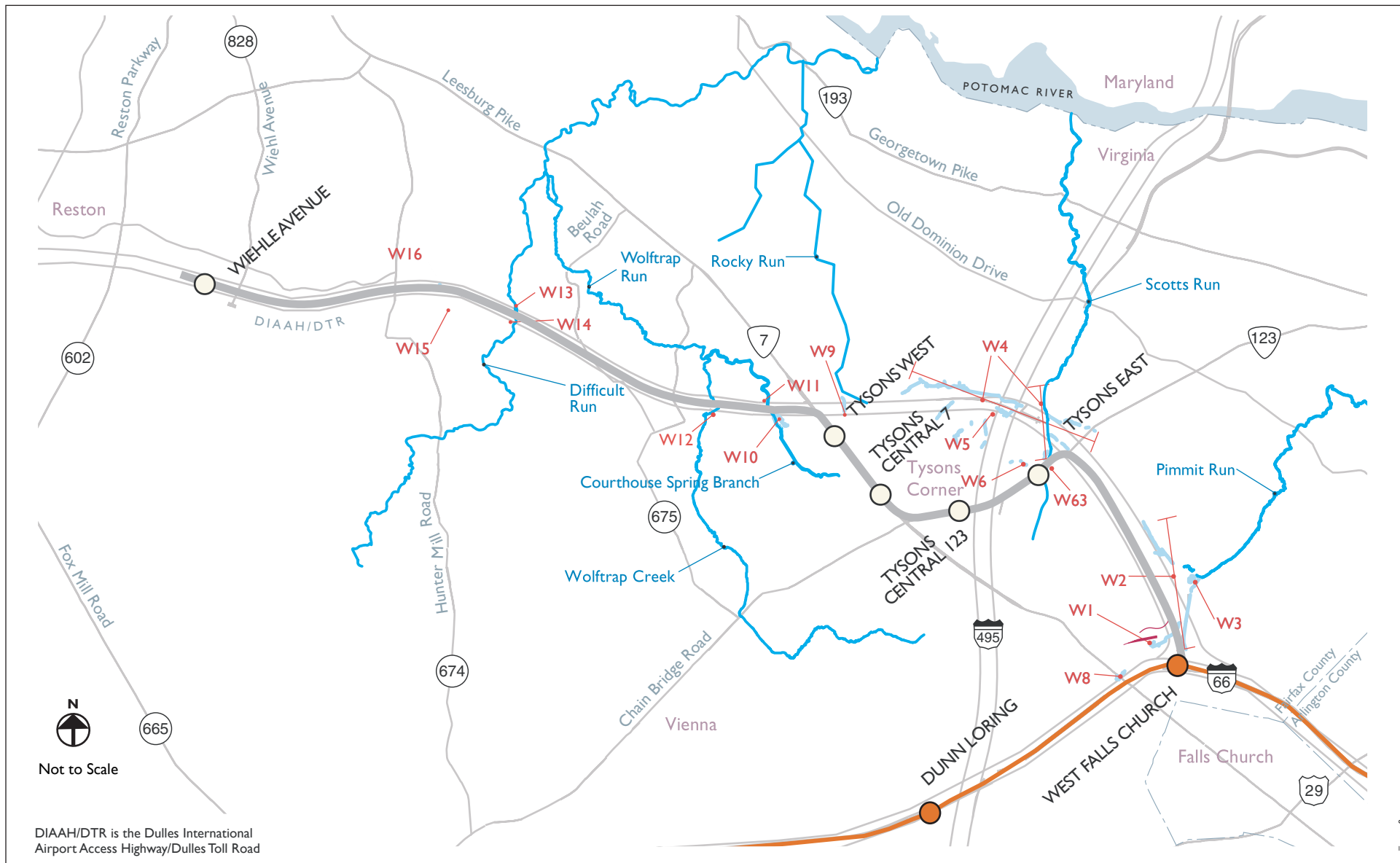
As shown in the table, the long-term effects to water resources from the proposed PE Wiehle Avenue Extension would be similar to those identified for the Final EIS Wiehle Avenue Extension. The majority of the design refinements associated with the PE Wiehle Avenue Extension are located within the core of Tysons Corner away from water resources. No new effects to water resources will occur as a result of the design refinements. Descriptions of the design refinements as they relate to the water resources in the corridor and more detail regarding the change in the effects to the resources are presented below.

- The addition of a new stormwater pond at the West Falls Church S&I Yard would protect Pimmit Run and its unnamed tributaries in the vicinity of the Yard. The new stormwater pond would be placed adjacent to the Resource Protection Area (RPA; part of the CBPA) for an unnamed tributary to Pimmit Run. A Resource Protection Area (RPA) is a land use designation for an area adjacent to and landward of a water resource connected to the Chesapeake Bay.

An RPA serves to protect water quality by removal, reduction, or assimilation of sediments, nutrients, or potentially harmful or toxic substances in runoff before entering the bay or its tributaries. The addition of a stormwater pond within the RPA between the S&I Yard and Pimmit Run would serve the same purposes of the RPA and is needed to mitigate stormwater flowing from the S&I Yard. The pond will both correct an existing issue at the yard and mitigate the additional stormwater flow to Pimmit Run that would result from the new yard lead and storage tracks for the Wiehle Avenue Extension.

DRPT has reviewed the plans for the stormwater pond with the Virginia Department of Conservation and Recreation (the agency responsible for stormwater management), Fairfax County (the local agency with jurisdiction for implementation of the CBPA), and WMATA (the property owner). These agencies agree that the addition of a stormwater pond at this site is appropriate.

- Overall proximity effects to Pimmit Run and its tributaries would be less than anticipated in the Final EIS because the planned maintenance building and roadway reconstruction anticipated at the S&I Yard are no longer planned.



EA Figure 3-3 JFM

#### Legend

-  New Station
-  Existing Orange Line Track and Station
-  Alignment

-  WI Wetland System Number
-  Major Streams
-  Tributary Streams

Figure 3-3

## Water Resources



- Shifting the platform at the Tysons East Station by 200 feet to the west eliminates the need to place support piers in Scotts Run. At the time the Final EIS was published, the engineering analysis was not detailed enough to know the exact placement of piers and it was therefore assumed that piers would not be placed in any of the streams that would be crossed by the project. As the engineering progressed during preliminary engineering, the design of the Tysons East Station was changed so that the locations of the piers would be shifted and direct impacts to Scotts Run would be avoided.
- In addition, shifting the station would lessen the water quality effects to Scotts Run and one of its unnamed perennial tributaries by reducing the amount of the stream that would be shaded. The station facilities will still be located adjacent to the stream and two narrow guideways will span the stream rather than the larger station.

As in the Final EIS, piers would be located within the 100-year floodplain and RPA. The Kiss & Ride lot for the Tysons East Station is still located within the RPA for Scotts Run, however, its footprint has been reduced by eliminating parking spaces. This will decrease the overall effect on the RPA.

The addition of a stormwater pond near Chatham's Ford Drive on the south side of the DIAAH and Dulles Toll Road would not affect an unnamed tributary stream located directly west of the new pond. The new pond location has been reviewed with the Virginia Department of Conservation and Recreation.

A federal Coastal Zone Management Act consistency determination for the project was issued by the Virginia Department of Environmental Quality (DEQ) in October 2004. This EA will be submitted to DEQ to confirm that existing determination remains valid. If the DEQ identifies additional mitigation measures for the project that are required as a result of the design refinements, then those measures will be added to the revised ROD.

### 3.6.2 Construction Effects

The construction effects on water resources that would result from the implementation of the PE Wiehle Avenue Extension would be similar to and include those documented in Section 4.2.5 of the Final EIS. The temporary construction effects to water resources and associated floodplains from the land disturbing activities are anticipated to be minor but may temporarily degrade surface water quality.

### 3.6.3 Mitigation

No additional mitigation measures over those committed to in the ROD are required as a result of the changes in effects described above. Best Management Practices (BMPs), as defined in the guidance, policies, standards, and specifications contained in the *Virginia Stormwater Management Handbook* (1999), and the *Northern Virginia Best Management Practices Handbook* (1992) would be used to minimize the proximity-and construction-related effects on water resources. The BMPs detailed in these documents ensure compliance with the Erosion and Sediment Control Law (Section 10.1-560 of the Code of Virginia), the Stormwater Management Act (Section 10.1-603.1 of the Code of Virginia), and Chapter 104 (Erosion and Sediment Control) of the Fairfax County Code of Regulations.

Two forthcoming PE reports—the *Erosion and Sediment Control Report* and *Stormwater Management and Drainage Design Report*—will document how the project will minimize effects to water resources.

These reports and associated preliminary engineering plans will be used to support the permitting process to be completed during Final Design. DRPT would also comply with the terms and conditions of the federal Coastal Zone Management Act consistency determination (or revised determination if DEQ determines modifications to the existing determination are needed) as reflected in the project's ROD.

### 3.7 TRAFFIC

This section presents the potential long-term and construction effects of the proposed PE Wiehle Avenue Extension on traffic operations, as compared to the effects presented for the Wiehle Avenue Extension in the Final EIS. A discussion of the existing and planned roadway system, the methodology used to assess traffic impacts, and existing and future conditions on the regional and local roadway network is provided in Section 6.2 of the Final EIS.

Changes in traffic effects for the PE Wiehle Avenue Extension would only occur along Route 7 between Route 123 and the Dulles Toll Road. As described in Chapter 2, this portion of Route 7 would be reconfigured as part of the preliminary engineering design refinements. The proposed roadway modifications include the following:

- The elimination of the two-way service roads on eastbound and westbound Route 7;
- The consolidation or elimination of connections to site access driveways on eastbound and westbound Route 7;
- The construction of four travel lanes (three through lanes and one shared through-right lane) on eastbound and westbound Route 7, except between Westpark Drive and SAIC Drive on westbound Route 7, where existing right-of-way limitations exist;
- The construction of an exclusive right-turn lane onto northbound Tyco Road from westbound Route 7;
- All existing mid-block left turns would be closed; therefore, left turns will only be permitted at signalized intersections;
- The construction of an exclusive right-turn lane onto southbound Gosnell Road from eastbound Route 7; and,
- The construction of double left-turn lanes on eastbound and westbound Route 7 at its Tyco Road/Westwood Center Drive intersection, and on eastbound Route 7 at its Westpark Drive/Gosnell Road and Spring Hill Road intersections.

#### 3.7.1 Changes in Long-Term Effects

The effects of the PE Wiehle Avenue Extension on regional traffic operations would be similar to the effects documented in Section 6.2.3.1 of the Final EIS for the Wiehle Avenue Extension. The project is expected to have a negligible impact on regional highway volumes.

For all stations except the Tysons Central 7 and Tysons West stations, the effects of the PE Wiehle Avenue Extension on local traffic operations would be similar to the effects documented in Section 6.2.3.2 of the Final EIS for the Wiehle Avenue Extension. Due to the proposed changes along Route 7 between Route 123 and the Dulles Toll Road, the potential long-term traffic effects of the PE Wiehle Avenue Extension near the Tysons Central 7 and Tysons West stations would be different than those

described in the Final EIS. The following sections summarize the results of the station area intersection analysis for the affected stations in 2011, the opening year of the Wiehle Avenue Extension, and for 2025, the forecast horizon year. The comparison analysis was performed only for the Build conditions in 2011 and 2025, and all peak hour traffic volumes used for the analysis were extracted from the Final EIS.

### 3.7.1.1 Tysons Central 7 Station

Instead of an underground station, the Tysons Central 7 Station for the PE Wiehle Avenue Extension would be partially at-grade and partially above grade in the median of Route 7, north of the Route 7/Route 123 interchange, between the Tysons Square Center and the Pike 7 Plaza. The location of the station entrance pavilions would not change, and pedestrian bridges spanning Route 7 would connect the entrance pavilions to the station. As in the Final EIS, park-and-ride and Kiss & Ride facilities would not be provided at this station.

The preliminary engineering design refinements would eliminate some of the intersections evaluated for the Tysons Central 7 station area analysis in the Final EIS. Previously, it was assumed that the future configuration of Route 7 included a combination of express and local lanes. Moving the rail alignment to the median of Route 7 and transitioning to grade closer to the Route 123 interchange would preclude the express-local configuration that was assessed for the Final EIS. As a result, a direct comparison of conditions at key intersections for the Final EIS Wiehle Avenue Extension and the PE Wiehle Avenue Extension is not possible at the Tysons Central 7 Station.

Instead, the EA analysis considers delay at the Route 7/Westpark Drive/Gosnell Road intersection to provide an estimate of traffic congestion in the station area with the new roadway configuration. Table 3-9 presents the a.m. and p.m. peak hour intersection level of service (LOS) at Route 7/Westpark Drive/Gosnell Road intersection in 2011 and 2025.

**TABLE 3-9: TYSONS CENTRAL 7 STATION PEAK HOUR LOS AND DELAY (IN SECONDS)**

| Primary Roadway/ Cross Street       | PE Wiehle Avenue Extension |                        |                        |                        |
|-------------------------------------|----------------------------|------------------------|------------------------|------------------------|
|                                     | 2011 a.m.<br>LOS/Delay     | 2011 p.m.<br>LOS/Delay | 2025 a.m.<br>LOS/Delay | 2025 p.m.<br>LOS/Delay |
| Route 7/Westpark Drive/Gosnell Road | F/I01                      | F/I01                  | F/I13                  | F/I16                  |

Although the Tysons Central 7 Station would not have parking or Kiss & Ride facilities, the reconstruction of Route 7 near this station would require the closure of the signalized entrance to the Marshall's/Sports Authority shopping center. As a result, all traffic destined for this shopping center would need to make left turns from westbound Route 7 onto southbound Gosnell Road. These additional left turns could be the cause of the peak hour delay at this intersection.

Traffic volumes at the Route 7/Route 123 interchange were not reanalyzed because the preliminary engineering design refinements would not result in changes to the lane configuration at this interchange.

### 3.7.1.2 Tysons West Station

For the PE Wiehle Avenue Extension, the Tysons West Station would be shifted from the south side of Route 7 to the median of the road. The location of the south entrance pavilion would remain the same, but the north entrance pavilion would shift closer to Route 7 and the station platform. Both entrance pavilions would connect to the station platform via pedestrian bridges spanning Route 7. Kiss & Ride

facilities for the station would be at the same location as in the Final EIS, but the bus bays would be moved from the interior parcel between Tyco Road and Spring Hill Road to the westbound side of Route 7. Access to the Kiss & Ride facilities would be from Tyco Road, while the bus bays would be accessed directly from Route 7.

In the Tysons West station area, the preliminary engineering design refinements would result in additional lanes along Route 7 as well as changes to the intersections at Route 7/Tyco Road/Westwood Center Drive and Route 7/Spring Hill Road. Dual left-turn lanes would be constructed on eastbound Route 7 at both intersections and on westbound Route 7 at Tyco Road/Westwood Center Drive, providing additional storage capacity for left-turning vehicles at these already congested intersections.

Tables 3-10 and 3-11 present the a.m. and p.m. peak hour intersection LOS at key intersections in the Tysons West Station area for both the Final EIS Wiehle Avenue Extension and the PE Wiehle Avenue Extension in 2011 and 2025. Traffic volumes at the Route 7/Dulles Toll Road interchange were not reanalyzed because the preliminary engineering design refinements will not result in changes to the lane configuration at this interchange.

**TABLE 3-10: 2011 TYSONS WEST STATION PEAK HOUR LOS AND DELAY (IN SECONDS)**

| Primary Roadway/<br>Cross Street            | Final EIS Wiehle Avenue<br>Extension |                        | Changes in Effects<br>(Final EIS vs. PE) |                    | PE<br>Wiehle Avenue<br>Extension |                        |
|---------------------------------------------|--------------------------------------|------------------------|------------------------------------------|--------------------|----------------------------------|------------------------|
|                                             | 2011 a.m.<br>LOS/Delay               | 2011 p.m.<br>LOS/Delay | 2011 a.m.<br>Delay                       | 2011 p.m.<br>Delay | 2011 a.m.<br>LOS/Delay           | 2011 p.m.<br>LOS/Delay |
| Route 7/Tyco Road/<br>Westwood Center Drive | F/185                                | F/195                  | -55                                      | -33                | F/130                            | F/162                  |
| Route 7/Spring Hill Road                    | E/77                                 | F/146                  | -24                                      | -33                | D/53                             | F/113                  |

**TABLE 3-11: 2025 TYSONS WEST STATION PEAK HOUR LOS AND DELAY (IN SECONDS)**

| Primary Roadway/<br>Cross Street            | Final EIS Wiehle Avenue<br>Extension |                        | Changes in Effects<br>(Final EIS vs. PE) |                    | PE<br>Wiehle Avenue<br>Extension |                        |
|---------------------------------------------|--------------------------------------|------------------------|------------------------------------------|--------------------|----------------------------------|------------------------|
|                                             | 2025 a.m.<br>LOS/Delay               | 2025 p.m.<br>LOS/Delay | 2025 a.m.<br>Delay                       | 2025 p.m.<br>Delay | 2025 a.m.<br>LOS/Delay           | 2025 p.m.<br>LOS/Delay |
| Route 7/Tyco Road/<br>Westwood Center Drive | F/186                                | F/192                  | -37                                      | -5                 | F/149                            | F/187                  |
| Route 7/Spring Hill Road                    | E/84                                 | F/135                  | -31                                      | -54                | D/53                             | E/81                   |

As shown in the tables, for both 2011 and 2025, the roadway modifications along Route 7 for the PE Wiehle Avenue Extension would result in lower a.m. and p.m. peak hour delays at key intersections near the Tysons West Station than the delays reported for the Final EIS Wiehle Avenue Extension. The reduction in delays can be directly attributed to the additional through lanes and additional left-turn storage capacity at intersections along Route 7.

The relocation of the Tysons West bus bays to Route 7 should not impact traffic operations on Route 7 because only three buses per hour would have to merge into general traffic lanes along Route 7. All other buses exiting the facility would turn right onto Tyco Road using a dedicated right-turn lane.



### 3.7.2 Construction Effects

The short-term effects on traffic operations that would result from construction of the PE Wiehle Avenue Extension would be similar to and include those described in Section 6.1.4 of the Final EIS for the Wiehle Avenue Extension. Although more information has been developed regarding construction activities, staging, and sequencing for the project, the construction effects presented in the Final EIS would remain the same.

Construction activities along the Dulles Connector Road, Route 123, Route 7, and the DIAAH would be expected to affect traffic operations along these routes. Lane detours and closures would likely be required at various points during the construction period. The Final EIS stated that maintenance of traffic plans would be developed to minimize the effects of construction activities on traffic flow during peak periods.

As part of the preliminary engineering effort, more specific information on construction activities and staging for the project has been developed. Construction is scheduled to begin in late 2006. Utility relocation and placement of some utilities underground would begin in mid- to late 2006 and would be confined mainly to the right-of-way adjacent to the existing service roads on eastbound and westbound Route 7. By early 2007, construction of the alignment from the existing Orange Line to Tysons Corner Center, via the Dulles Connector Road and Route 123, would begin. By the end of 2007, construction would be underway on the remainder of the Wiehle Avenue Extension.

#### 3.7.2.1 Preliminary Maintenance of Traffic Concepts

As more detailed construction plans have become available, initial maintenance of traffic (MOT) concepts for affected roadways have been identified. Concepts that have been developed to date include the permanent realignment and temporary reconfiguration of several heavily traveled roadways in the Tysons Corner area. The general concepts are summarized briefly below.

**I-495 Crossing.** Where the Metrorail alignment crosses over I-495, it would be necessary to widen the I-495 bridges over Route 123 so that track piers for the rail alignment can be constructed in the median of the highway. During construction it would be necessary close the shoulders on both the inner and outer loops of I-495 near Route 123. I-495 would be re-striped so that traffic could be shifted to permit the construction of the bridge widening. Once the bridge widening is complete, all travel lanes would then be shifted back to the widened section in order to create a construction zone in the median area of I-495 for the construction of the overhead track pier.

**Dulles Connector Road and DIAAH.** The Metrorail alignment would be constructed between retaining walls in the median along portions of these roadways. In most locations, the construction zone would only occupy the existing shoulder and would not extend into the adjacent travel lanes; at these locations, any remaining portions of the shoulder would be closed. In those locations where the construction zone would extend into the adjacent travel lanes it would be necessary to re-stripe the pavement and use portions of the right shoulder, or construct temporary pavement, to accommodate all existing travel lanes.

At locations where the alignment transitions to/from the Connector Road and the DIAAH, it is anticipated that the installation of support columns for overhead track would require lane closures. Such activities would follow VDOT lane closure techniques, as described in the VDOT Work Area Protection Manual. Installation of girders on top the columns would require a temporary roadway closure during the late

night/early morning hours. Temporary closure of the DIAAH or the Dulles Connector Road would not occur simultaneously.

**Route 123.** Due to utility staging requirements and station access, it may be necessary to shift Route 123 away from the stations for a short time. Additionally, in order to have clear access to the tunnel section at the Route 7/123 interchange, it may be necessary to close sidewalks and widen the shoulders on Route 123. It is also anticipated that there will be daily lane closures for material delivery and equipment access. All lane closures would be coordinated through VDOT and follow their lane closures techniques.

**Route 7.** The reconstruction/MOT plans along Route 7 would occur in three phases.

- Phase 1 (one to three months): The two-way service roads on eastbound and westbound Route 7 would be eliminated and temporary pavement would be constructed in their place. All existing mid-block crossings would be eliminated therefore left turns would only be permitted at the existing signalized intersections. Driveway access to parcels to/from Route 7 would be consolidated or eliminated.
- Phase 2 (two to three years): Traffic would be diverted to the old service road areas. During this phase there would be three through lanes and one shared through-right lane along most of the alignment from the Route 7/123 interchange to the Route 7/Dulles Toll Road interchange. The median aerial alignment and additional left-turn bays would be constructed during this time.
- Phase 3 (three to six months): Temporary pavement would be removed and Route 7 would be restored to the final configuration.

All construction activities affecting the travel lanes in the construction zone will be done in accordance with the “Special Provisions and Notice of Restrictions” developed by VDOT for the Dulles Corridor Metrorail Project. It may be necessary to close various lanes of traffic during the day depending on the construction activities on Route 7 and Route 123. Lane closures will never occur during the a.m. or p.m. peak rush hours, but they may occur during the off-peak period.

More detailed information on MOT plans for the Wiehle Avenue Extension can be found in the forthcoming *Maintenance of Traffic Preliminary Report for Preliminary Engineering*.

### 3.7.2.2 Construction Vehicle Traffic

Throughout the construction period, soil will be excavated for construction of the tunnel section in Tysons Corner, footings for track piers, and storm water management ponds near Wiehle Avenue. With permission from the Metropolitan Washington Airports Authority, construction vehicles (dump trucks) would use the DIAAH to haul the excavated soil from the construction sites on the Dulles Connector Road, Route 7, Route 123, and the DIAAH to the proposed S&I Yard Site 15 at Dulles Airport. Trucks would primarily use the Dulles Connector Road to access the DIAAH in order to avoid congestion on the Beltway. It would also be necessary for trucks to use Route 28 and sections of the Dulles Toll Road since rock and construction materials would be coming from the Haymarket, Virginia area. A system of acceleration and deceleration lanes would be developed so that the trucks can safely enter and exit traffic.

Approximately 500,000 cubic yards of soil would be imported and/or exported to and from S&I Yard Site 15 at Dulles Airport, which would result in approximately 50 construction vehicles per day entering and exiting the site. A planning-level analysis was conducted to determine the effects of construction vehicles on traffic operations in the vicinity of S&I Yard Site 15. According to 2004 AADT (Average Annual

Daily Traffic) provided by VDOT, the section of Route 606 that provides access to S&I Yard Site 15 carries approximately 23,000 vehicles per day. Based on VDOT AADT and peak hour turn-lane warrant criteria, a right-turn lane and a left-turn lane would be needed on Route 606 in order to provide safe and adequate access to the S&I Yard Site 15 facilities during construction of the PE Wiehle Avenue Extension. A traffic signal would not be warranted at this location. As documented in the Final EIS, a right-turn lane and a left-turn lane would be necessary at this location under the Full LPA in 2025. However, since soil from the construction of the piers and tunnel section will be placed at S&I Yard Site 15, the additional turn lanes would now be needed when construction begins. There would be no additional impacts to businesses or other properties adjacent to S&I Yard Site 15 from construction vehicles.

### 3.7.3 Mitigation

Proposed mitigation measures for long-term effects on traffic operations would be similar to those documented in the Final EIS and committed to in the ROD. Additionally, in order to provide safe and adequate access for construction vehicles to the S&I Yard Site 15 site at Dulles Airport, a right-turn lane and a left-turn lane on northbound Route 606 would be required once construction of the PE Wiehle Avenue Extension begins.

To mitigate the construction effects of the PE Wiehle Avenue Extension on traffic, DRPT is currently developing a Congestion Management Program (CMP) for the Dulles Connector Road, Route 7, and Route 123 corridors. The CMP will consist of implementation strategies focused on transportation demand management, communications/marketing, transit, local network operations, intelligent transportation systems (ITS), and incident management that will help to reduce the amount of traffic traveling within the construction zone, redistribute existing congestion throughout Tysons Corner, reduce or manage construction-related delays, and to provide alternative commute options to the employees of Tysons Corner. Currently, the estimated budget for the CMP is \$25 million. Funding for this program will be determined by the Secretary of Transportation and/or the Commonwealth Transportation Board (CTB). The project's CMP Implementation Plan will be available in mid-2006.

## 3.8 TRANSIT OPERATIONS

This section presents the potential long-term effects of the proposed PE Wiehle Avenue Extension on transit operations and ridership, as compared to the effects presented for the Wiehle Avenue Extension in the Final EIS. A discussion of the existing and planned transit system, the methodology used to assess impacts, and projected transit ridership on the regional and corridor transit system is provided in Section 6.1 of the Final EIS.

Some of the design refinements for the PE Wiehle Avenue Extension would result in slight changes in transit operations (see Table 3-12); however, none of these changes would cause significant changes in the overall effects presented for transit operations in Section 6.1.3 of the Final EIS. Ridership projections would not change.

**TABLE 3-12: SUMMARY OF TRANSIT OPERATIONS EFFECTS**

| <b>Design Refinement</b>                                                               | <b>Change in Transit Operations</b>                                                                                                                                                                                                 | <b>Changes in Effects</b>                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Relocation of bus facility at Tysons West Station                                      | Requires re-routing of several feeder bus routes to access on-street bus bays rather than off-street bus facility                                                                                                                   | None. The routing changes would have minimal, if any, effects on bus running times. Therefore, no changes in O&M costs are anticipated.                                                                                                               |
| Reduction of bus bays at Tysons West Station                                           | Reduced size would still be sufficient for anticipated number of buses and layovers at facility; however, arrival times for some routes would be modified so that circulators would not all arrive at Tysons West at the same time. | None. Staggering the arrival of circulator buses at Tysons West would not effect ridership on the Dulles Corridor line.                                                                                                                               |
| Station platform shifts in Tysons Corner                                               | None. Despite minor shifts in station platforms, the locations of entrance pavilions would generally remain the same.                                                                                                               | None. The station platform shifts would have no effect on transit operations or ridership.                                                                                                                                                            |
| Relocation of mezzanine and pedestrian bridge connection at Tysons Central 123 Station | Requires passengers to proceed down to street level from pedestrian bridge to enter station, then go up again to reach aerial platform                                                                                              | Minor effects on station access. Loss of "same level" connection from pedestrian bridge and adjacent development would make station access less direct.                                                                                               |
| Elimination of second elevator at entry buildings for stations                         | In the event of an elevator outage at either entrance, requires the provision of bus service to adjacent entrances to maintain accessibility for disabled passengers                                                                | Moderate effects on station access. Modest reduction in station accessibility in the event of elevator outage for most passengers. Considerable reduction in accessibility and decreased convenience for disabled passengers during elevator outages. |
| No maintenance building expansion at West Falls Church S&I Yard                        | Maintenance of Dulles Corridor fleet would be conducted at existing WMATA facilities.                                                                                                                                               | None. Existing WMATA facilities would provide sufficient excess capacity to maintain Dulles Corridor fleet until the second phase of project is complete. This change would have minimal effect on O&M costs.                                         |

The preliminary engineering design refinements include modifications to the location and size of the bus facility planned for the Tysons West Station. As described in Chapter 2, these changes include relocating the bus bays from an interior parcel with access off of Tyco Road to a bus pull-off lane along the north side of Route 7. The relocated bays would be designed to allow continuous curb-side boarding. The number of bays would be reduced from the eight proposed in the Final EIS to five.

As a result of these changes, 10 feeder bus routes connecting to the Tysons West Station would need to be re-routed to make use of the relocated bus bays. Only bus routings would be affected; no changes in headways or hours of service are proposed. In general, buses that previously turned off Tyco Road to access the Tysons West bus facility would now either (1) loop around on Spring Hill Road, westbound Route 7, and Tyco Road, (2) make use of an on-street bus stop on eastbound Route 7, or (3) stop along westbound Route 7 before turning onto Tyco Road to continue east. Specific routing changes for affected routes are presented in a technical memorandum entitled *Effects Of Tysons West Station PE Design Refinements On Proposed Tysons Corner Bus Routings* (January 2006).

The modification of the Tysons West bus facility and the associated feeder bus route changes would not result in changes to the effects on transit service presented in the Final EIS. The bus re-routings would not affect Dulles Corridor or regional rail operations, and would have minimal, if any, impacts on bus running times. Therefore, no changes in operations and maintenance costs resulting from the route changes are anticipated. In addition, analysis of bus bay requirements shows that the five bays provided at the Tysons West Station for the PE Wiehle Avenue Extension is sufficient to handle revenue service and layovers for the feeder routes serving the station, although scheduling for some routes would need to be modified so that bus arrival times at Tysons West Station are staggered.

Several of the proposed design refinements would affect station accessibility. The relocation of the mezzanine and pedestrian bridge connections at the Tysons Central 123 Station would result in a less direct connection for passengers accessing the station from the south side of Route 123. In addition, the elimination of the second elevator at the entry buildings for all stations would reduce the accessibility of stations during an elevator outage at either entrance, especially for disabled patrons. WMATA's standard operating policy is to provide "bus bridges" to adjacent stations during elevator outages. For the PE Wiehle Avenue Extension, bus service would be provided to adjacent entrances during elevator outages.

The design refinements for the PE Wiehle Avenue Extension also include the elimination of the maintenance building expansion proposed at the West Falls Church S&I Yard for the Final EIS Wiehle Avenue Extension. Instead, maintenance of the Dulles Corridor fleet would be conducted at existing WMATA facilities. This modification is not expected to change the transit effects presented in the Final EIS. The existing WMATA facilities will provide sufficient excess shop capacity to maintain the Dulles Corridor fleet until the new S&I Yard is constructed at Dulles Airport during the project's second phase.

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# A

## APPENDIX A: LIST OF PREPARERS

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|                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>FEDERAL TRANSIT ADMINISTRATION</b>                        | Patricia Kampf, <i>Transportation Program Specialist, Region 3</i><br>A. Joseph Ossi, <i>Environmental Planner, Office of the Human and Natural Environment</i>                                                                                                                                                                                                                                                                                                                                                                           |
| <b>VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION</b> | Karl A. Rohrer, AICP, <i>Deputy Project Director – Project Development</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b>        | Dan Korzym, P.E., CCM, <i>Senior Project Manager</i><br>James A. Ashe, P.E., C.P.G., <i>Manager, Environmental Planning and Compliance</i>                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>PARSONS</b>                                               | Sina Raouf, AICP, <i>Project Manager</i><br>Anne M. Darnall, <i>Deputy Project Manager</i><br>Jessica DeWispelaere, <i>Transportation and Environmental Planning</i><br>Elizabeth Federico, AICP, <i>Alternatives Analysis and Environmental Planning</i><br>Kathe Gregory, <i>Graphic Design</i><br>Don Kindsvatter, AIA, AICP, <i>Review of Design Refinements and Visual Analysis</i><br>Gretchen Von Grossmann, RA, AICP, <i>Review of Design Refinements</i><br>Wendy Riggs-Smith AIA, LEED, AP, <i>Review of Design Refinements</i> |
| <b>DMJM HARRIS</b>                                           | Chris Bell, AICP, <i>Transit Operations</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>FITZGERALD &amp; HALLIDAY, INC.</b>                       | Kristen D. Ahlfeld, AICP, <i>Traffic Analysis</i><br>Charles T. Smith, PE, PTOE, <i>Traffic Analysis</i><br>Carla D. Tillery, <i>Traffic Analysis</i><br>William Wuensch, PE, PTOE, <i>Traffic Analysis QA/QC</i>                                                                                                                                                                                                                                                                                                                         |
| <b>KM CHNG ENVIRONMENTAL, INC.</b>                           | Richard Letty, <i>Noise and Vibration</i><br>David Ernst, <i>Air Quality</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |



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# B APPENDIX B: DISTRIBUTION LIST

Table B-1 identifies those elected officials, agencies, organizations, and public libraries which received a hard copy of this Environmental Assessment (EA). A complete copy of the EA will also be posted to the project's website ([www.dullesmetro.com](http://www.dullesmetro.com)) and made available for review at DRPT's project office in Vienna, Virginia. A notice of availability for the EA will be published in local newspapers, posted on the project's website, and broadcast via e-mail to the more than 10,000 stakeholders on the project's current mailing list. All recipients of the project's Final EIS will also be notified of the EA availability via mail.

**TABLE B-1: LIST OF RECIPIENTS**

| Organization                        | Point of Contact            | Title                | Number of Copies |
|-------------------------------------|-----------------------------|----------------------|------------------|
| <b>Federal Elected Officials</b>    |                             |                      |                  |
| U.S. Senate                         | George Allen                | Senator              | 1                |
| U.S. Senate                         | John Warner                 | Senator              | 1                |
| U.S. House of Representatives       | Tom Davis                   | 11th District        | 1                |
| U.S. House of Representatives       | James P. Moran              | 8th District         | 1                |
| U.S. House of Representatives       | Frank R. Wolf               | 10th District        | 1                |
| <b>State Elected Officials</b>      |                             |                      |                  |
| Virginia State Senate               | Janet D. Howell             | 32nd District        | 1                |
| Virginia State Senate               | Mark R. Herring             | 33rd District        | 1                |
| Virginia State Senate               | Jeannemarie Devolites Davis | 34th District        | 1                |
| Virginia House of Delegates         | David Poisson               | 32nd District        | 1                |
| Virginia House of Delegates         | Vincent F. Callahan, Jr.    | 34th District        | 1                |
| Virginia House of Delegates         | Stephen C. Shannon          | 35th District        | 1                |
| Virginia House of Delegates         | Kenneth R. Plum             | 36th District        | 1                |
| Virginia House of Delegates         | James M. Scott              | 53rd District        | 1                |
| Virginia House of Delegates         | Thomas Davis Rust           | 86th District        | 1                |
| <b>Local Elected Officials</b>      |                             |                      |                  |
| Fairfax County Board of Supervisors | Gerald Connolly             | Chairman At-Large    | 1                |
| Fairfax County Board of Supervisors | Joan Dubois                 | Dranesville District | 1                |
| Fairfax County Board of Supervisors | Catherine Hudgins           | Hunter Mill District | 1                |
| Fairfax County Board of Supervisors | Linda Smyth                 | Providence District  | 1                |
| Loudoun County Board of Supervisors | Scott York                  | Chairman At-Large    | 1                |

# DISTRIBUTION LIST

**TABLE B-1: LIST OF RECIPIENTS**

| Organization                                             | Point of Contact         | Title                                        | Number of Copies |
|----------------------------------------------------------|--------------------------|----------------------------------------------|------------------|
| Loudoun County Board of Supervisors                      | Stephen Snow             | Dulles District                              | 1                |
| District of Columbia                                     | Anthony Williams         | Mayor                                        | 1                |
| Council of the District of Columbia                      |                          |                                              | 1                |
| Montgomery County                                        | Douglas M. Duncan        | County Executive                             | 1                |
| Montgomery County Council                                |                          |                                              | 1                |
| Prince George's County                                   | Jack B. Johnson          | County Executive                             | 1                |
| Prince George's County Council                           |                          |                                              | 1                |
| Falls Church City Council                                | Kathleen C. Buschow      | City Clerk                                   | 1                |
| City of Alexandria                                       | William D. Euille        | Mayor                                        | 1                |
| Alexandria City Council                                  |                          |                                              | 1                |
| Arlington County Board of Supervisors                    | Jay Fisette              | Chairman                                     | 1                |
| City of Fairfax                                          | Robert F. Lederer        | Mayor                                        | 1                |
| Fairfax City Council                                     |                          |                                              | 1                |
| City of Falls Church                                     | Daniel Gardner           | Mayor                                        | 1                |
| Town of Herndon                                          | Michael O'Reilly         | Mayor                                        | 1                |
| Town of Vienna                                           | M. Jane Seeman           | Mayor                                        | 1                |
| <b>Federal Agencies</b>                                  |                          |                                              |                  |
| Environmental Protection Agency, Region 3                | Donald Welsh             | Regional Administrator                       | 1                |
| Federal Aviation Administration                          | Terry Page               | Manager, Washington Airports District Office | 1                |
| Federal Highway Administration                           | Roberto Fonseca-Martinez | Virginia Division Administrator              | 1                |
| U.S. Army Corps of Engineers                             | Bruce F. Williams        | Chief, Northern Virginia Regulatory Section  | 1                |
| <b>Regional, State, and Local Agencies</b>               |                          |                                              |                  |
| Maryland – National Capital Park and Planning Commission |                          | Montgomery County                            | 1                |
| Maryland – National Capital Park and Planning Commission |                          | Prince George's County                       | 1                |
| Metropolitan Washington Airports Authority               | James Bennett            | President                                    | 1                |
| Metropolitan Washington Council of Governments           | David Robertson          | Executive Director                           | 1                |
| National Capital Planning Commission                     | Patricia Gallagher       | Executive Director                           | 1                |
| Northern Virginia Regional Planning Commission           | G. Mark Gibbs            | Executive Director                           | 1                |
| Northern Virginia Transportation Commission              | Richard Taube            | Executive Director                           | 1                |
| Commonwealth Transportation Board                        | Katherine Hanley         | Northern Virginia District                   | 1                |

**TABLE B-1: LIST OF RECIPIENTS**

| <b>Organization</b>                                                                  | <b>Point of Contact</b> | <b>Title</b>                                         | <b>Number of Copies</b> |
|--------------------------------------------------------------------------------------|-------------------------|------------------------------------------------------|-------------------------|
| Commonwealth Transportation Board                                                    | Robert Sevila           | At-Large, Urban                                      | 1                       |
| Virginia Department of Transportation                                                | Dennis Morrison         | Northern Virginia District Administrator             | 2                       |
| Virginia Dept of Conservation and Recreation                                         | Joseph Maroon           | Director                                             | 1                       |
| Virginia Dept of Conservation and Recreation, Chesapeake Bay Local Assistance Office | John Friedman           | Local Coordinator                                    | 1                       |
| Virginia Dept of Environmental Quality, Office of Environmental Impact Review        | Ellie Irons             | Program Manager                                      | 3                       |
| Virginia Dept of Environmental Quality, Office of Environmental Impact Review        | Charles Ellis           | Environmental Impact Review/ Consistency Coordinator | 1                       |
| Virginia Dept of Game and Inland Fisheries                                           | W. Gerald Massengill    | Interim Director                                     | 1                       |
| Virginia Department of Historic Resources                                            | Marc Holma              | Office of Review and Compliance                      | 1                       |
| Virginia Marine Resources Commission                                                 | William Pruitt          | Commissioner                                         | 1                       |
| Maryland Department of Transportation                                                | Robert L. Flanagan      | Secretary                                            | 1                       |
| Maryland State Highway Administration                                                | Neil J. Pedersen        | Administrator                                        | 1                       |
| Maryland Department of Planning                                                      | Audrey Scott            | Secretary                                            | 1                       |
| Washington Metropolitan Area Transit Commission                                      | William Morrow, Jr.     | Executive Director                                   | 1                       |
| Washington Suburban Transit Commission                                               | Lewis Farber            | Executive Secretary-Treasurer                        | 1                       |
| WMATA                                                                                | Dan Tangherlini         | Acting General Manager                               | 1                       |
| WMATA                                                                                | Dan Korzym              | Senior Project Manager                               | 2                       |
| WMATA                                                                                | Jim Ashe                | Manager, Environmental Compliance                    | 25                      |
| Fairfax County                                                                       | Anthony Griffin         | County Executive                                     | 1                       |
| Fairfax County Department of Planning and Zoning                                     | James Zook              | Director                                             | 2                       |
| Fairfax County Department of Public Works and Environmental Services                 | James Patterson         | Director                                             | 1                       |
| Fairfax County Department of Transportation                                          | Kathy Ichter            | Acting Director                                      | 2                       |
| Loudoun County                                                                       | Kirby Bowers            | County Administrator                                 | 1                       |
| Arlington County                                                                     | Ron Carlee              | County Manager                                       | 1                       |
| City of Falls Church                                                                 | Daniel McKeever         | City Manager                                         | 1                       |
| Town of Herndon                                                                      | Steve Owen              | Town Manager                                         | 1                       |
| Town of Vienna                                                                       | John H. Schoeberlein    | Town Manager                                         | 1                       |

# DISTRIBUTION LIST

**TABLE B-1: LIST OF RECIPIENTS**

| Organization                                                  | Point of Contact      | Title              | Number of Copies |
|---------------------------------------------------------------|-----------------------|--------------------|------------------|
| <b>Libraries and Public Locations</b>                         |                       |                    |                  |
| Ashburn Library                                               | Loudoun County Branch |                    | 1                |
| Dolley Madison Community Library                              | Fairfax County Branch |                    | 1                |
| Eastern Loudoun Regional Library                              | Loudoun County Branch |                    | 1                |
| Mary Riley Styles Public Library                              | Falls Church Library  |                    | 1                |
| Great Falls Community Library                                 | Fairfax County Branch |                    | 1                |
| Herndon Fortnightly Library                                   | Fairfax County Branch |                    | 1                |
| Patrick Henry Community Library                               | Fairfax County Branch |                    | 1                |
| Reston Regional Library                                       | Fairfax County Branch |                    | 1                |
| Sterling Library                                              | Loudoun County Branch |                    | 1                |
| Tysons-Pimmit Regional Library                                | Fairfax County Branch |                    | 1                |
| Dulles Corridor Metrorail Project Office                      |                       |                    | 5                |
| <b>Private Companies and Unions Required by WMATA Compact</b> |                       |                    |                  |
| United Motor Coach Association                                |                       |                    | 1                |
| Amalgamated Transit Union                                     |                       |                    | 1                |
| International Brotherhood of Teamsters                        |                       | Local 246          | 1                |
| International Brotherhood of Teamsters                        |                       | Local 922          | 1                |
| Greater Washington Board of Trade                             | Robert A. Peck        | President          | 1                |
| Federal City Council                                          | John Hill             | Executive Director | 1                |

# C APPENDIX C: SUMMARY OF EFFECTS

| Measure                                                        | Final EIS<br>Wiehle Avenue<br>Extension                                                                     | Changes in<br>Effects<br>(Final EIS vs.<br>PE)                                                                         | PE<br>Wiehle Avenue<br>Extension                                                                                                                                         |
|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>COSTS<sup>1</sup></b>                                       |                                                                                                             |                                                                                                                        |                                                                                                                                                                          |
| Capital Costs (YOE)                                            | \$1.521B                                                                                                    | + \$319M                                                                                                               | \$1.840B                                                                                                                                                                 |
| Capital Funding Sources <sup>2</sup>                           | 50% Federal<br>50% Non-Federal                                                                              | No change                                                                                                              | 50% Federal<br>50% Non-Federal                                                                                                                                           |
| Incremental Annual O&M Costs ( YOE)                            | \$67.6M                                                                                                     | No change                                                                                                              | \$67.6M                                                                                                                                                                  |
| <b>TRANSPORTATION EFFECTS</b>                                  |                                                                                                             |                                                                                                                        |                                                                                                                                                                          |
| <b>Transit Service</b>                                         |                                                                                                             |                                                                                                                        |                                                                                                                                                                          |
| Forecast Year Total Transit Ridership in Corridor <sup>3</sup> | 73,300 <sup>4</sup>                                                                                         | No change                                                                                                              | 73,300 <sup>4</sup>                                                                                                                                                      |
| Forecast Year Metrorail Ridership in Corridor <sup>3</sup>     | 68,500                                                                                                      | No change                                                                                                              | 68,500                                                                                                                                                                   |
| Forecast Year New Transit Trips in Region <sup>3</sup>         | 34,400                                                                                                      | No change                                                                                                              | 34,400                                                                                                                                                                   |
| Peak Period Headways for Metrorail (minutes)                   | 7                                                                                                           | No change                                                                                                              | 7                                                                                                                                                                        |
| Off Peak Period Headways for Metrorail (minutes)               | 12                                                                                                          | No change                                                                                                              | 12                                                                                                                                                                       |
| Proposed Tysons Corner Bus Operations                          | New feeder service proposed to serve Metrorail stations and Tysons Corner area                              | None. Routing and arrival time changes would not affect operating costs or ridership                                   | New feeder service proposed to serve Metrorail stations and Tysons Corner area; some re-routing of feeder buses near Tysons West Station and staggering of arrival times |
| Station Access                                                 | Two elevators provided at each station entrance; maintains accessibility in the event of an elevator outage | Modest reduction in accessibility for most passengers; considerable reduction in accessibility for disabled passengers | Second elevator at station entrance buildings eliminated; requires the provision of bus service to adjacent entrances in the event of an elevator outage                 |

## SUMMARY OF EFFECTS

| Measure                                      | Final EIS<br>Wiehle Avenue<br>Extension                                                                         | Changes in<br>Effects<br>(Final EIS vs.<br>PE)                                                                                       | PE<br>Wiehle Avenue<br>Extension                                                                                                   |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Maintenance Facilities                       | Maintenance building expansion at West Falls Church S&I Yard; Dulles fleet maintained at West Falls Church Yard | None. Existing WMATA facilities will have sufficient excess capacity to maintain Dulles fleet until second phase of project complete | Eliminate maintenance building expansion at West Falls Church S&I Yard; Dulles fleet to be maintained at existing WMATA facilities |
| <b>Roadways</b>                              |                                                                                                                 |                                                                                                                                      |                                                                                                                                    |
| Regional Highway Operations                  | Minimal effect on traffic volumes                                                                               | No change                                                                                                                            | Minimal effect on traffic volumes                                                                                                  |
| Local Roadway Operations                     | Increased traffic in vicinity of stations with Parking or Kiss & Ride areas                                     | Reduced delay in vicinity of Tysons West Station                                                                                     | Increased traffic in vicinity of stations with Parking or Kiss & Ride areas                                                        |
| Number of Intersections Requiring Mitigation | 4                                                                                                               | No change                                                                                                                            | 4                                                                                                                                  |
| <b>Other Transportation Facilities</b>       |                                                                                                                 |                                                                                                                                      |                                                                                                                                    |
| Parking (increase over No Build)             | 1,500 spaces                                                                                                    | No change                                                                                                                            | 1,500 spaces                                                                                                                       |
| Bicycle and Pedestrian Facilities            | No effect on existing and planned facilities<br>Pedestrian and bicycle access would be provided for stations    | No change                                                                                                                            | No effect on existing and planned facilities<br>Pedestrian and bicycle access would be provided for stations                       |
| Air Transportation                           | No impact on operations at Dulles Airport                                                                       | No change                                                                                                                            | No impact on operations at Dulles Airport                                                                                          |
| <b>SOCIAL EFFECTS</b>                        |                                                                                                                 |                                                                                                                                      |                                                                                                                                    |
| <b>Land Use</b>                              |                                                                                                                 |                                                                                                                                      |                                                                                                                                    |
| Compatible with Existing Land Use            | Yes                                                                                                             | No change                                                                                                                            | Yes                                                                                                                                |
| Compatible with Local Zoning                 | Yes, although special exceptions would be required at some station areas.                                       | No change                                                                                                                            | Yes, although special exceptions would be required at some station areas.                                                          |
| Compatible with Planned Development          | Partially                                                                                                       | No change                                                                                                                            | Partially                                                                                                                          |
| Consistent with Comprehensive Plans          | Partially. Plans assume high-capacity transit improvements for the full length of the Dulles Corridor.          | No change                                                                                                                            | Partially. Plans assume high-capacity transit improvements for the full length of the Dulles Corridor.                             |



| Measure                                                       | Final EIS<br>Wiehle Avenue<br>Extension                                                                              | Changes in<br>Effects<br>(Final EIS vs.<br>PE)                           | PE<br>Wiehle Avenue<br>Extension                                                                                     |
|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| <b>Neighborhoods and Community Facilities</b>                 |                                                                                                                      |                                                                          |                                                                                                                      |
| Community Cohesion                                            | No Effect                                                                                                            | No change                                                                | No effect                                                                                                            |
| Changes in Population and Employment                          | Likely for<br>neighborhoods within<br>½-mile of stations                                                             | No change                                                                | Likely for<br>neighborhoods within<br>½-mile of stations                                                             |
| Access Changes                                                | Pedestrian<br>improvements near<br>stations; localized<br>increases in traffic<br>volumes in vicinity of<br>stations | No change                                                                | Pedestrian<br>improvements near<br>stations; localized<br>increases in traffic<br>volumes in vicinity of<br>stations |
| Community Facility Impacts                                    | 1                                                                                                                    | No change                                                                | 1                                                                                                                    |
| <b>Property Acquisitions</b>                                  |                                                                                                                      |                                                                          |                                                                                                                      |
| Private Residential Properties Acquired (No. parcels)         | 11                                                                                                                   | - 2                                                                      | 9                                                                                                                    |
| Private Commercial Properties Acquired (No. parcels)          | 37                                                                                                                   | + 3                                                                      | 40                                                                                                                   |
| Government Properties Acquired (No. parcels) <sup>5</sup>     | 14                                                                                                                   | + 2                                                                      | 16                                                                                                                   |
| <b>Displacements</b>                                          |                                                                                                                      |                                                                          |                                                                                                                      |
| Residential Displacements (No.)                               | 0                                                                                                                    | No change                                                                | 0                                                                                                                    |
| Business Displacements Due to Project Facilities (No.)        | 3                                                                                                                    | - 2                                                                      | 1                                                                                                                    |
| Business Displacements Due to Construction Activity (No.)     | n.d. <sup>6</sup>                                                                                                    | +6                                                                       | 6                                                                                                                    |
| <b>Visual and Aesthetic Conditions</b>                        |                                                                                                                      |                                                                          |                                                                                                                      |
| Tysons Corner stations                                        | Minimal effect                                                                                                       | Modest increase at<br>Tysons Central 7;<br>Modest reduction<br>at others | Minimal effect                                                                                                       |
| Alignments in medians of Dulles Connector Road and DIAAH      | Minimal effect                                                                                                       | Modest reduction<br>along Connector<br>Road                              | Minimal effect                                                                                                       |
| Alignments along Route 7 and Route 123                        | Minimal effect                                                                                                       | Modest increase<br>along Route 7                                         | Minimal effect                                                                                                       |
| Portals on Route 123 and Route 7                              | Minimal effect                                                                                                       | Modest increase                                                          | Minimal effect                                                                                                       |
| Wiehle Avenue Station                                         | Minimal effect                                                                                                       | Modest reduction                                                         | Minimal effect                                                                                                       |
| West Falls Church S&I Yard improvements, including yard leads | Negligible effect                                                                                                    | Modest reduction                                                         | Negligible effect                                                                                                    |
| <b>Cultural Resources</b>                                     |                                                                                                                      |                                                                          |                                                                                                                      |
| Adverse Effects on Archaeological Sites                       | None                                                                                                                 | No change                                                                | None                                                                                                                 |
| Adverse Effects on Historic Architectural Properties          | None                                                                                                                 | No change                                                                | None                                                                                                                 |

## SUMMARY OF EFFECTS

| Measure                                                                    | Final EIS<br>Wiehle Avenue<br>Extension                                                                | Changes in<br>Effects<br>(Final EIS vs.<br>PE)          | PE<br>Wiehle Avenue<br>Extension                                                                       |
|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| <b>Parklands and Recreation Areas</b>                                      |                                                                                                        |                                                         |                                                                                                        |
| Adverse Effects on Parklands and Recreation Areas                          | None                                                                                                   | No change                                               | None                                                                                                   |
| Resources Experiencing Minor Proximity Impacts (No.)                       | 2                                                                                                      | No change                                               | 2                                                                                                      |
| <b>Safety and Security</b>                                                 |                                                                                                        |                                                         |                                                                                                        |
| Concerns beyond those typically accounted for in existing Metrorail system | None                                                                                                   | No change                                               | None                                                                                                   |
| <b>Environmental Justice</b>                                               |                                                                                                        |                                                         |                                                                                                        |
| Disproportionate Impacts to Minority/ Low Income Populations               | None                                                                                                   | No change                                               | None                                                                                                   |
| <b>ENVIRONMENTAL EFFECTS</b>                                               |                                                                                                        |                                                         |                                                                                                        |
| <b>Geologic Resources</b>                                                  |                                                                                                        |                                                         |                                                                                                        |
| Geology and Topography                                                     | Minor effects                                                                                          | No change                                               | Minor effects                                                                                          |
| Groundwater and Local Aquifers                                             | Minor effects due to increase in impervious surface                                                    | No change                                               | Minor effects due to increase in impervious surface                                                    |
| Sole Source Aquifers                                                       | No effect                                                                                              | No change                                               | No effect                                                                                              |
| Soils                                                                      | Minor effects                                                                                          | No change                                               | Minor effects                                                                                          |
| Prime Farmland                                                             | No effect                                                                                              | No change                                               | No effect                                                                                              |
| <b>Water Resources</b>                                                     |                                                                                                        |                                                         |                                                                                                        |
| Streams                                                                    | 7 streams crossed<br>Minimal effects                                                                   | Less proximity effects at Pimmit Run                    | 7 streams crossed<br>Minimal effects                                                                   |
| Water Quality                                                              | Minimal effects                                                                                        | Less water quality effects at Pimmit Run and Scotts Run | Minimal effects                                                                                        |
| 100-Year Floodplain                                                        | Bridge piers placed in 100-year floodplain for 3 streams<br>No change in surface elevation anticipated | No change                                               | Bridge piers placed in 100-year floodplain for 3 streams<br>No change in surface elevation anticipated |
| Chesapeake Bay Preservation Areas                                          | Minimal effects                                                                                        | Less effect at Scotts Run                               | Minimal effects                                                                                        |
| Wetlands Impacts (Acres)                                                   | 0                                                                                                      | No change                                               | 0                                                                                                      |
| <b>Biota and Habitat</b>                                                   |                                                                                                        |                                                         |                                                                                                        |
| Aquatic Biota and Habitat                                                  | Minimal                                                                                                | No change                                               | Minimal                                                                                                |
| Terrestrial Biota and Habitat                                              | Minimal                                                                                                | No change                                               | Minimal                                                                                                |

| Measure                                                         | Final EIS<br>Wiehle Avenue<br>Extension                                                                | Changes in<br>Effects<br>(Final EIS vs.<br>PE)            | PE<br>Wiehle Avenue<br>Extension                                                                      |
|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| Effects on Rare, Threatened, and Endangered Species             | None                                                                                                   | No change                                                 | None                                                                                                  |
| Critical Habitat for RTE Species                                | None                                                                                                   | No change                                                 | None                                                                                                  |
| <b>Air Quality</b>                                              |                                                                                                        |                                                           |                                                                                                       |
| Conformity with SIP                                             | Yes                                                                                                    | No change                                                 | Yes                                                                                                   |
| Contribution to Regional Goals                                  | Partially. Plans assume high-capacity transit improvements for the full length of the Dulles Corridor. | No change                                                 | Partially. Plans assume high-capacity transit improvements for full length of Dulles Corridor         |
| Reduced Vehicles Emissions vs. Existing Levels                  | Yes                                                                                                    | Modest emissions increases at intersections along Route 7 | Yes                                                                                                   |
| NAAQS Violations                                                | None                                                                                                   | No change                                                 | None                                                                                                  |
| <b>Noise and Vibration<sup>7</sup></b>                          |                                                                                                        |                                                           |                                                                                                       |
| Noise Receptors Above FTA Criteria Before Mitigation (No.)      | 184                                                                                                    | No change                                                 | 184                                                                                                   |
| Noise Receptors Above WMATA Criteria Before Mitigation          | 48                                                                                                     | No change                                                 | 48                                                                                                    |
| Vibration Receptors Above FTA Criteria Before Mitigation (No.)  | 7                                                                                                      | – 1 receptor                                              | 6                                                                                                     |
| Groundborne Noise Receptors Above FTA Criteria (No.)            | 15                                                                                                     | – 1 receptor                                              | 14                                                                                                    |
| Vibration Receptors Above WMATA Criteria Before Mitigation      | 15                                                                                                     | – 1 receptor                                              | 14                                                                                                    |
| <b>Hazardous and Contaminated Materials</b>                     |                                                                                                        |                                                           |                                                                                                       |
| Sites of Concern Potentially Affected                           | 4                                                                                                      | No change                                                 | 4                                                                                                     |
| <b>Energy</b>                                                   |                                                                                                        |                                                           |                                                                                                       |
| Percent Change in Direct Energy Usage from No Build Alternative | +0.04%                                                                                                 | No change                                                 | +0.04%                                                                                                |
| <b>SECONDARY AND CUMULATIVE EFFECTS</b>                         |                                                                                                        |                                                           |                                                                                                       |
| <b>Potential for Effects Related to Secondary Development</b>   |                                                                                                        |                                                           |                                                                                                       |
| Effect on Overall Growth in Fairfax County                      | Minor increase<br>Refocuses previously anticipated growth into areas with more transportation options  | No change                                                 | Minor increase<br>Refocuses previously anticipated growth into areas with more transportation options |
| Increased Demand on Community Facilities and Public Services    | Yes                                                                                                    | No change                                                 | Yes                                                                                                   |

## SUMMARY OF EFFECTS

| Measure                                              | Final EIS<br>Wiehle Avenue<br>Extension                                                                                                   | Changes in<br>Effects<br>(Final EIS vs.<br>PE) | PE<br>Wiehle Avenue<br>Extension                                                                                                          |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Effect on Transportation                             | Increased traffic<br>volumes near stations<br>Increased transit<br>mode share<br>Increased pedestrian<br>and bicycle trips to<br>stations | No change                                      | Increased traffic<br>volumes near stations<br>Increased transit<br>mode share<br>Increased pedestrian<br>and bicycle trips to<br>stations |
| Change in Visual Character                           | Yes, due to denser<br>development near<br>stations in Tysons<br>Corner and Wiehle<br>Avenue                                               | No change                                      | Yes, due to denser<br>development near<br>stations in Tysons<br>Corner and Wiehle<br>Avenue                                               |
| <b>Contribution of Project to Cumulative Effects</b> |                                                                                                                                           |                                                |                                                                                                                                           |
| Water Resources                                      | None<br>Project has no major<br>long-term effects on<br>resources                                                                         | No change                                      | None<br>Project has no major<br>long-term effects on<br>resources                                                                         |
| Air Quality                                          | None<br>Project in<br>conformance with<br>Virginia SIP                                                                                    | No change                                      | None<br>Project in<br>conformance with<br>Virginia SIP                                                                                    |
| Historic Resources                                   | None<br>Project has no adverse<br>effect on resources                                                                                     | No change                                      | None<br>Project has no adverse<br>effect on resources                                                                                     |
| Section 4(f) Resources                               | None<br>Project would not<br>make use of resources                                                                                        | No change                                      | None<br>Project would not<br>make use of resources                                                                                        |

Notes:

- 1 "B" – Billions, "M" - Millions.
- 2 Non-federal refers to monies that would come from local jurisdictions as well as the Commonwealth of Virginia.
- 3 Average weekday riders.
- 4 Includes 4,800 express bus riders that would not transfer to Metrorail.
- 5 Government Properties include approved proffers to be conveyed to governmental entity.
- 6 Not documented in the Final EIS.
- 7 Planned mitigation measures will reduce impacts below FTA criteria.